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ANALYTICAL RESULTS REPORT OF  
AIR SAMPLING AT RICHARDSON FLAT  
PARK CITY, UTAH

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Ref. 2

## TABLE OF CONTENTS

	PAGE
LIST OF TABLES AND FIGURES . . . . .	i
I. INTRODUCTION . . . . .	1
II. SITE DESCRIPTION . . . . .	
III. SITE HISTORY . . . . .	
IV. METEOROLOLOGY. . . . .	
V. METHODOLOGY. . . . .	
VI. QUALITY ASSURANCE. . . . .	
VII. ANALYTICAL RESULTS . . . . .	
VIII. DISCUSSION . . . . .	
IX. CONCLUSIONS AND RECOMMENDATIONS . . . . .	

## APPENDICES

APPENDIX I	FIGURES
APPENDIX II	RAW RESULTS AND QA REPORT
APPENDIX III	CALIBRATION DATA
APPENDIX IV	UPDATED SITE INVESTIGATION FORMS

Ref 2

## LIST OF TABLES

TABLE 1	FILTER CONCENTRATIONS
TABLE 2	FLOW CALCULATIONS
TABLE 3	AIRBORNE CONCENTRATIONS
TABLE 4	COMPARISONS OF UPGRADIENT VS DOWNGRAIENT AND THREE SAMPLE LOCATIONS TO REMOTE BACKGROUND
TABLE 5	SOIL RESULTS
TABLE 6	SAMPLING START AND STOP TIMES

## LIST OF FIGURES

FIGURE 1	AREA MAP OF PARK CITY
FIGURE 2	AIR SAMPLE LOCATION
FIGURE 3	SOIL SAMPLE LOCATIONS
FIGURE 4	WIND ROSE DAY 1
FIGURE 5	WIND ROSE DAY 2
FIGURE 6	WIND ROSE DAY 3
FIGURE 7	WIND ROSE DAY 4
FIGURE 8	WIND ROSE DAY 5
FIGURE 9	WIND SPEED DAY 1
FIGURE 10	WIND SPEED DAY 2
FIGURE 11	WIND SPEED DAY 3
FIGURE 12	WIND SPEED DAY 4
FIGURE 13	WIND SPEED DAY 5

Page 1

ANALYTICAL RESULTS REPORT  
FOR RICHARDSON FLAT TAILINGS  
PARK CITY, UTAH  
TDD #R8-8608-05

I. INTRODUCTION

This report was prepared to satisfy the requirements of Technical Directive Document (TDD) R8-8608-05 issued to Ecology and Environment's Field Investigation Team (E&E FIT) by Region VIII Environmental Protection Agency (EPA). This report addresses the analytical results for the air sampling activities conducted at the Richardson Flat Tailings site in Park City, Utah. FIT members conducting the air sampling during July 7-14, 1986 were Henry Schmelzer and Dave Franzen. Sampling procedures used in this investigation conform to the Region VIII FIT SOP for Hi-Vol Air Sampling at Hazardous Waste Site; the Quality Assurance Handbook for Air Pollution Measurement Systems, Volume II - Ambient Air Specific Methods; EPA-600/4-77-027A, May, 1977, U.S. EPA, Research Triangle Park, N.C.; and 40 CFR Part 58, July, 1983.

The overall scope of the project involved the set up and operation of a total of five high volume (hi-vol) air samplers at four sampling locations over a five day period. A total of twenty-nine samples were collected including four duplicates and five blanks. Site access was set up by Sue Kennedy of Ecology and Environment, and Kelsey Land and Matt Cohn of Region VIII EPA.

The objectives of this investigation were to determine if the migration of heavy metal contaminated suspended particulate matter exists and to further substantiate and complete the HRS air route score. This score was previously based on photo-documentation of wind blown tailings material.

## II. SITE DESCRIPTION

Richardson Flat Tailings is located in Summit County, Utah approximately 3.5 miles northeast of Park City. The tailings cover approximately 160 acres in the NW 1/4, Section 1 and NE 1/4 of Section 2, Township 2 South, Range 4 East (Figure 1). Highway 40 runs east and north of the area, and a Union Pacific Railroad track bisects the southern portion of the tailings. Silver Creek is located approximately 500 feet from the northwestern most extension of the tailings. An intermittent stream (water diversion ditch) forms the southeastern border of the tailings. An ephemeral pond overlies the northeastern portion of the tailings, and is contained by a dam at the northwestern end.

## III. SITE HISTORY

The mill tailings at Richardson Flat came from the Keetley Ontario Mine and other metal mines currently owned by United Park City Mines (UPCM). The most recent use of the area for tailings disposal was during the period of time from 1975 to 1981. During this time, UPCM had all its mining properties leased to either Park City Ventures or Noranda Mining, Inc. who constructed and operated milling facilities on UPCM property.

It is estimated that at least seven million tons of tailings were deposited on Richardson Flat. While there is no current dumping of tailings on site, Mr. Ray Wortley is leasing the land the tailings are on from UPCM and using the tailings material for sewer line and road base backfill.

The site is not secured in any way from public access. An unpaved county road along the southern boundary of the tailings is unrestricted. Cattle and sheep are grazed in the area, and cattle have been observed walking across the tailings.

Ref. 2

On June 20, 1985, clouds of fugitive dust moving offsite as a result of strong winds from the west-northwest were photographed by the original EPA-FIT team doing the site investigation. Results of analyses of surface tailings samples showed concentrations as high as 3,600 ppm arsenic, 80 ppm cadmium, 8,530 ppm lead, and 6,360 ppm zinc. Mean soil concentrations for those metals in the western U.S. respectively are 5.5 ppm, 0.2 ppm, 17 ppm, and 55 ppm (Shacklette, 1984).

#### IV. METEOROLOGY

The Richardson Flat tailings lie in a small flat topographic basin of approximately 800 acres. The configuration of the basin was expected to have a pronounced effect on local air flow. The basin is situated at 6600 feet elevation and is surrounded by ridges of the Wasatch Mountains that range from 6700 feet to 7600 feet. Silver Creek enters the basin from the west-southwest then angles to the north. Daytime up valley air flows were anticipated to originate from the west northwest. This was found to be the case.

The data presented in the following section was acquired from The Climatic Atlas of the United States, U.S. Department of Commerce, Environmental Sciences Services Administration, Environmental Data Service, June 1968. The climate of the Park City area is characterized by moderate fluctuations in temperature and precipitation throughout the year. Mean monthly temperatures range from 10 degrees Fahrenheit (°F) in December, January, and February to 80°F in June, July and August. During the month of July the average temperature is approximately 60°F. Precipitation for the Park City area varies from a mean monthly amount of 1.00 inches in July to 2.22 inches in December. Prevailing wind direction at Park City is typically from a southeasterly direction throughout the year. Relative humidity for the Park City area varies from 40 percent in August to 80 percent in December and February. The average relative humidity in July is 50 percent. Barometric pressure ranges from 1022 millibars (30.18 inches of mercury) in December and January to approximately 1010 millibars (29.83 inches of mercury) in June.

242

## V. METHODOLOGY

All air sampling stations under this TDD were set up to sample in the breathing zone and were located in accordance with the Region VIII FIT SOP for Hi-Vol Sampling at Hazardous Waste Sites. The meteorologic station was set up next to sample locations AM-03 and AM-04. The wind vane was calibrated to magnetic north.

Air temperature, barometric pressure and relative humidity were also measured. This information was used to correct all flows and air concentrations to standard temperature and pressure conditions (STP).

The samplers were calibrated using a General Metal Works GMW-35 top loading orifice calibrator using an 8" x 10" cellulose filter in place. All samplers were set to run for 12 hours at approximately 40 cubic feet per minute. No calibration curve was available at the time the samplers were set up to initially calibrate them. It was decided to not attempt to change the flow rates since they had been set to 40 cfm at the last sampling site. When the sampling at Richardson Flat was completed, a calibration curve for the calibrator used was prepared at EPA-ESD in Denver and the actual flow rates of the samplers were calculated. See Appendix III.

All samplers were equipped with elapsed timers to record the total sample time. Each hi-vol also was equipped with a flow recorder which measured the flow throughout the sampling period. Any fluctuations in flow during the sample period would be noted on the recorder disk. It also served as a check on the elapsed timer.

Surficial soil samples from five locations were also taken. There was some concern that lead emissions from gasoline powered vehicles would cause interference in the air samples from the traffic along U.S. 40 and the county road. Samples were collected at two feet, ten feet and fifty feet from the edge of the asphalt roadway to see if deposition of lead from these vehicles would cause any interference or affect the results.

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## VI. QUALITY ASSURANCE

The air samples were analyzed for arsenic, cadmium, lead and zinc only. Soil samples were analyzed for Task 1 and 2 metals. The inorganic analytical data were examined thoroughly for compliance with contract laboratory program quality assurance criteria. The data were found to be of good quality. In the air samples, spike recoveries for cadmium and zinc were 65% and 60% respectively and actual values in the tables may be higher than presented. The analytical results for lead in soils were also of good quality. Duplicates showed good agreement. A blank was submitted for each sampling day. The quality assurance reports and raw data are shown in Appendix II.

## VII. ANALYTICAL RESULTS

The results of the inorganic analyses are noted in Table 1. Sample locations are noted in Figure 2.

Formulas used for determining the airborne concentrations are presented along with an explanation of terms with Table 2. Table 2 shows the calculations used to determine the total volume of air sampled corrected to standard conditions by each sampler on each sampling day. This information was used to create Table 3 which contains the average concentration per cubic meter for each of the four elements of concern. When combined with the wind speed and direction information from Figures 4-13, offsite migration of the contaminants can be determined. Table 4 shows the field increases for each days samples comparing upwind and downwind concentrations and downwind versus the remote background. Table 5 shows the Task 1 and 2 metal concentration in soils by the two major roadways by the site.



Ref 2

## VIII. DISCUSSION

### DAY 1

The sampling period began at 1745 hours on July 8, 1986 with the start up of the hi-vol sampler at location AM-01. The last hi-vol sampler shut off at approximately 0700 hours on the morning of July 9th. The wind rose for this period is shown in Figure 4. The predominant wind flow for this period is from the SE at 61% of the sample period. The SSE direction also accounted for 18% of the wind during this time period. Wind speed and direction at the start of the sample period at 1800 hours were 5-10 mph from the SSE. At 2000 the winds increased slightly to around 10 mph and from the SE. At 2100 the wind speed increased to 15-20 mph from the SE. Winds again increased to over 20 mph with several gusts over 40 mph at 0030. Winds dropped back to 10-20 mph at 0130 and continued until 0500 when winds died to near calm, continuing that way until the end of the sample period at 0700.

Based on sampler locations during this time period, sampler AM-02 would be upwind and samplers AM-03 and AM-04 would be downwind. Sampler AM-05 was located fairly close to these last two locations and can serve as a secondary downwind sample location on this day. Results from Table 4 show a 102 fold increase in lead an 83 fold increase in cadmium, a 49 fold increase in arsenic, and a 40 fold increase in zinc, when comparing upwind versus downwind concentrations.

When sample location AM-02 is compared to AM-05, the results from Table 4 show a 59 fold increase in lead, a 50 fold increase in zinc, a 25 fold increase in arsenic and a 14 fold increase in cadmium.

### DAY 2

Sampling began at 1100 on July 9th and ended at 0300 on July 10th. The wind rose for this sample period is shown in Figure 5. The

Ref-2

predominant winds are from the WNW and NW with 25% and 18% of the wind respectively from those vectors. The sample period started with light and variable winds from 0-10 mph. At 1430, the wind increased to 10-20 mph and stabilized from the WNW. At 1800 hours the wind dropped back to 5-10 mph and at 2000 the wind went calm and continued that way until the sample period ended.

Based on the wind rose, the upwind sample location would be AM-04 and the downwind location would be AM-02. Comparing upwind versus downwind sample locations reveals an 11 fold increase in lead, a 5 fold increase in zinc, and 7 fold increase in arsenic.

#### DAY 3

The sample period began at 1100 hours on July 10th and continued until 2300 hours. Figure 6 shows the wind rose for the site for this period of time. The predominant wind direction is WNW with 69% of the wind for this time period from that direction. Based on the wind rose and sampler locations, the upwind sampler would be AM-04 and the downwind location would be AM-02.

The wind at the start of the sampling period was from the NNW at 5-10 mph. At 1045, the wind picked up to 10-20 mph from the WNW and continued so until 1800 hours when the wind slowed to 5-10 and then went calm at 2000 hours.

Results from Table 4 show a 9 fold increase in lead, a three fold increase in zinc, a ten fold increase in arsenic and a two fold increase in cadmium when comparing upgradient versus downgradient.

#### DAY 4

Sampling was initiated at 1000 hours and continued until 2300 hours. Figure 7 shows the wind rose for this sampling period. The predominant wind direction is WNW with 55% of the sampling time followed by NW with 10%. Based on this information, the upgradient sample location is AM-04 and the downgradient is AM-02.

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The sample period began with the wind blowing from the east at 5-10 mph. At 1100 hours, the wind became light at less than 5 mph and variable but at 1130 hours it stabilized with the wind coming from the WNW at 5-10 mph. The wind speed picked up to 10-20 mph at 1230 hours. It continued at this speed and direction through 1930 hours and also had a period of gusts to 30 mph around 1400 hours. The wind died off to 5-10 mph at 1930 hours and remained calm after 2000 hours.

Results from Table 4 show an increase in contaminant concentration of two fold for lead, three fold for zinc, seven fold for arsenic and 1.1 fold for cadmium for this sample period. Sampler AM-02 was the last sampler started so consequently when the winds went calm and remained that way for the last 3 1/2 - 4 hours of the sampling period there would be less particulate material becoming airborne to be collected by the sampler.

#### DAY 5

The sample period for the 5th day started at 1000 hours and stopped at 2400 hours. Figure 8 shows the wind rose for this sample period. The predominant wind direction was NW with 25% of the sample time but 18% of the time the wind was from the SE, the completely opposite direction. No reliable upgradient or downgradient sample locations can be derived from the information so the three sample locations next to the tailing were compared to the remote background at AM-01.

The wind was 0-5 mph and variable at the start of the sample period at 1000 hours. It increased to 5-10 at 1300 hours and was predominantly from the SE but shifted to the NW at 1400 hours. This remained the predominant wind direction until 1930 when the wind died and went calm until the end of the sample period.

In comparison to the remote background location at AM-01, the sampler at AM-02 shows a six-fold increase in lead, a two-fold increase in zinc and a 1.8 fold increase in arsenic. When comparing

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AM-01 to AM-04 there is a 3.5 fold increase in lead, 1.3 fold increase in zinc, and a 1.5 fold increase in arsenic at sample location AM-04. Comparing AM-05 to AM-01 there is a 2.4 fold increase in lead, a 1.5 fold increase in zinc, a 1.2 fold increase in arsenic and a 1.25 fold increase in cadmium at sample location AM-05.

Five soil samples were also taken on this day. The results are shown in Table 5. Of principle concern was the potential for interference with lead from vehicle emissions along U.S. 40 and the county road. Deposition of lead from vehicle emissions is most pronounced within the first 15 meters of the roadway. (40 CFR, Part 58, Appendix E, 7.3 and Daines, 1970). The samples taken 2 feet off of the asphalt edge of the roadway on U.S. 40 and the county road show lead at 477 and 418 mg/kg concentrations respectively. At 10 feet from the county road the concentration drops to 133 mg/kg. At 50 feet from U.S. 40 the concentration is 13 mg/kg which is within the range of the average lead in soil concentration for the Western U.S. of 9-31 mg/kg (Shacklette, 1984).

The air sampling location nearest to either U.S. 40 or the county road is over 200 yards. The concentration of lead in the tailings is 8530 mg/kg and the samplers were placed next to the tailings. Hence, based on the soil sampling and the air station placement, lead from vehicle emissions is not likely to be a major contributing factor to lead deposition in the air samples.

Soil sample SO-05 was intended to be a background sample for the soils. It was taken outside of the major airshed for the area in Park City, unfortunately by the Prospector Hotel. The sample contained 3479 mg/kg of lead and through an oversight, was collected from the Silver Creek Tailings proposed NPL site. Hence, sample SO-05 is not a background sample.

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## IX. CONCLUSIONS AND RECOMMENDATIONS

Table 4 compares the airborne metal concentrations of downgradient versus upgradient sample locations by sample day. Lead released from daily downgradient sample location ranged from 2.28 to 102.35 times the upgradient sample location. Zinc ranged from 2.43 to 49.58. Arsenic ranged from 7.33 to 48.84. Cadmium ranged from 1.0 to 82.5. When compared to the remote background, the increases are even higher: 261.56 for lead and 91.67 for cadmium.

Strong winds observed on the evening of July 7 prompted a night-time sample run. Winds during this sampling period were the strongest observed during the field activities and lasted throughout the sampling period. This may account for the largest release occurring on the first sampling day.

Based upon the information presented in this analytical results report, it can be concluded that Richardson Flat Tailing site is the source of a release of hazardous substances to the air. Onsite soil concentrations of arsenic, cadmium, lead and zinc documented in previous reports are yielding substantial concentrations of suspended particulates containing these elements. These contaminated particulates are migrating into the air at downwind sample locations on a daily basis when compared to the upwind sample location. The same is true when comparing the downwind samples to those taken at the same times from the remote background location. Based on this information, it is recommended that the Hazard Ranking System documentation package be updated and supplied with the current information.

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TABLE 1  
RICHARDSON FLATS  
ARSENIC, CADMIUM, LEAD AND ZINC CONCENTRATIONS IN  
TOTAL ug/filter BY SAMPLE DAY

	AM-06	AM-01	AM-04	AM-03	AM-02	AM-05A INITIAL LOCATION	AM-06 STATIC MOVED
DAY 1	BLANK						
Arsenic	--	1.0u	54	1.0u	1.0u	17	
Cadmium	--	.5ur	4.8r	.5ur	.5u	5.2r	
Lead	--	3.4	959	.5u	8.3	348	
Zinc	--	17j	672j	.4uj	15j	527j	
DAY 2	BLANK						
Arsenic	1.0u	1.0u	1.5	1.4	6.8	1.0u	
Cadmium	.5ur	.5ur	.5ur	.5ur	.5ur	.5ur	
Lead	.5u	8.90	30	26	147	14	
Zinc	.4uj	21j	39j	34j	88j	17j	
DAY 3	BLANK						
Arsenic	1.0u	1.0u	1.5	1.0u	13	1.4	
Cadmium	.5ur	.5ur	.5ur	.5ur	.8r	.5ur	
Lead	.5u	12	36	25	264	30	
Zinc	.4uj	23j	43j	28j	169j	55j	
DAY 4	BLANK						
Arsenic	1.0u	1.0u	1.0u	1.2	6.6	--	1.1
Cadmium	.5ur	.5ur	.5ur	.5ur	.5ur	--	.5ur
Lead	.5u	29	64	40	131	--	35
Zinc	.4uj	43j	35j	36j	98j	--	43j
DAY 5	BLANK						
Arsenic	1.0u	1.0u	1.5	1.0u	1.8	--	1.0u
Cadmium	.5ur	.5ur	.5ur	.5ur	.5ur	--	.5ur
Lead	.5u	8.0	27	30	48	--	16
Zinc	.4uj	22j	27j	23j	51j	--	27j

u Element is undetected. Detection limit given.

j Matrix spike recovery was 65% for cadmium. Actual value may be higher. Duplicate relative percent of differences were out of CLP criteria for zinc.

r Matrix spike recovery for zinc was 60%. Values given are estimates.

Ref 2

## EXPLANATION OF TABLE 2

### FORMULAS:

$$Q_{std} = Q_R \times \frac{P_a \text{ in Hg} \times 25.4}{T_a K} \times \frac{298K (T_{std})}{760\text{mm}(P_{std}) \text{ of Hg}}$$

$$\text{Vol.}_{std} \text{ m}^3 = t_{min} \times Q_{std} / 35.32 \text{ CFM}$$

QRI CFM = Initial flow rate in cubic feet per minute.

QRF CFM = Final flow rate in cubic feet per minute.

QR CFM = Average flow rate in cubic feet per minute.

Ti F = Initial temperature in degrees Fahrenheit.

Tf F = Final temperature in degrees Fahrenheit.

Ta K = Average temperature converted to degrees Kelvin.

Pa in. Hg = average barometric pressure in inches of mercury.

Qstd CFM = Flow rate in cubic feet per minute at standard temperature and pressure.

t min = Total time in minutes that sampler ran.

Vol. std m<sup>3</sup> = Total volume of air sampled in cubic meters at standard temperature and pressure..

TABLE 2. CALCULATIONS OF STANDARD FLOW RATES

	STATION NUMBER	LOCATION	FILTER #	QR CFM	TAK	PA INCHES	QSTD CFM	T MIN	V STD M <sup>3</sup>
DAY 1									
	AM-01	BACKGROUND	AM-01-1	43	290	23.25	34.33	552	536.60
	AM-02	SE	AM-02-1	41	287	23.25	33.08	549	514.25
	AM-03	BLANK	AM-03-1	0.0	--	--	--	--	--
	AM-04	DAM	AM-04-1	42	288	23.25	33.77	609	582.34
	AM-05	NW	AM-05-1	41	289	23.25	32.85	391	363.72
DAY 2									
	AM-01	BACKGROUND	AM-01-2	40.5	289	23.25	32.45	704	646.89
	AM-02	SE	AM-02-2	39	288	23.25	31.36	696	617.99
	AM-03	DUPLICATE	AM-03-2	39.5	290	23.25	31.54	590	526.93
	AM-04	DAM	AM-04-2	42.5	290	23.25	33.94	610	586.17
	AM-05	NW	AM-05-2	41	288	23.25	32.96	699	652.48
	AM-06	BLANK	AM-06-2	0.0	--	--	--	--	--
DAY 3									
	AM-01	BACKGROUND	AM-01-3	42.5	291	23.35	33.96	650	625.13
	AM-02	SE	AM-02-3	42	290	23.35	33.68	589	561.73
	AM-03	DUPLICATE	AM-03-3	39.5	290	23.35	31.68	678	608.12
	AM-04	DAM	AM-04-3	43	290	23.35	34.48	674	658.10
	AM-05	NW	AM-05-3	40.5	290	23.35	32.48	658	605.13
	AM-06	BLANK	AM-06-3	0.0	--	--	--	--	--
DAY 4									
	AM-01	BACKGROUND	AM-01-4	45.5	293	23.35	36.11	726	742.41
	AM-02	SE	AM-02-4	40	293	23.35	31.75	624	560.97
	AM-03	DUPLICATE	AM-03-4	40	293	23.35	31.75	665	597.83
	AM-04	DAM	AM-04-4	42	293	23.35	33.34	661	623.95
	AM-05	W	AM-05-4	37.5	292	23.35	29.87	630	532.79
	AM-06	BLANK	AM-06-4	0.0	--	--	--	--	--
DAY 5									
	AM-01	BACKGROUND	AM-01-5	40.5	293	23.40	32.21	688	627.58
	AM-02	SE	AM-02-5	41	296	23.40	32.28	658	601.47
	AM-03	DUPLICATE	AM-03-5	38	296	23.40	29.92	642	543.90
	AM-04	DAM	AM-04-5	42.5	296	23.40	33.46	642	608.31
	AM-05	W	AM-05-5	39	292	23.40	31.13	586	516.50
	AM-06	BLANK	AM-06-5	0.0	--	--	--	--	--



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TABLE 3  
AVERAGE AIRBORNE CONCENTRATIONS OF ARSENIC, CADMIUM, LEAD AND ZINC  
PER DAY IN ug/m<sup>3</sup>

	BACKGROUND AM-01	DAM AM-04	DUPLICATE AM-03	SE AM-02	NW AM-05A	W AM-0
DAY 1						
Arsenic	.0019 u	.0928	--	.0019 u	.0467	--
Cadmium	.0009 ur	.0825 r	--	.0010 u	.0143 r	--
Lead	.0063	1.6478	--	.0161	.9560	--
Zinc	.0317 j	1.1546 j	--	.0292 j	1.4478 j	--
DAY 2						
Arsenic	.0015 u	.0026	.0027	.0110	.0015	--
Cadmium	.0007 ur	.0009 ur	.0009 ur	.0008 ur	.0008 ur	--
Lead	.0138	.0512	.0493	.2379	.0214	--
Zinc	.0325 j	.0666 j	.0645 j	.1424 j	.0260 j	--
DAY 3						
Arsenic	.0016 u	.0023	.0016 u	.0231	.0023	--
Cadmium	.0008 ur	.0008 ur	.0008 ur	.0014 r	.0008 ur	--
Lead	.0192	.0547	.0411	.4698	.0496	--
Zinc	.0368 j	.0653 j	.0461 j	.3007 j	.0909 j	--
DAY 4						
Arsenic	.0013 u	.0016 u	.0020	.0118	--	.0021
Cadmium	.0007 ur	.0008 ur	.0008 ur	.0009 ur	--	.0009
Lead	.0391	.1026	.0669	.2335	--	.0657
Zinc	.0580 j	.0561 j	.0602 j	.1747 j	--	.0807
DAY 5						
Arsenic	.0016 u	.0025	.0018 u	.0029	--	.0019
Cadmium	.0008 ur	.0008 ur	.0009 ur	.0008 ur	--	.0010
Lead	.0127	.0444	.0551	.0799	--	.0309
Zinc	.0350 j	.0444 j	.0423 j	.0849 j	--	.0522

-- Sample not run.

u Element is undetected.

j Matrix spike recovery was 65% for cadmium. Actual value may be higher.

r Duplicate relative percent of differences were out of CLP criteria for zinc.

r Matrix spike recovery for zinc was 60%. Values given are estimates.

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TABLE 4. COMPARISON OF DOWNGRADIENT VS. UPGRADIENT AND BACKGROUND  
AIRBORNE METALS CONCENTRATION BY SAMPLE DAY IN ug/m<sup>3</sup>

DAY	PREVAILING WIND	REMOTE BCKGRD	UPGRADIENT LOCATION	PRIMARY DN GRADIENT LOCATION	SECONDARY DN GRADIENT LOCATION	CONTAMINANT INCREASE (TIMES UPGRADIENT)		
						PRIMARY	SECONDARY	REMOTE BACKGROUND
1	SE	AM-01	AM-02	AM-04	AM-05A			
		AS.0019	.0019	.0928	.0467	48.84	24.58	48.84
		CD.0009	.0010	.0825	.0143	82.50	14.30	91.67
		PB.0063	.0161	1.6478	.9560	102.35	59.38	261.56
		ZN.0317	.0292	1.1546	1.4478	39.54	49.58	36.42
2	WNW	AM-01	AM-05A	AM-02				
		AS.0015	.0015	.0110	--	7.33	--	7.33
		CD.0007	.0008	.0008	--	1.0	--	1.14
		PB.0138	.0214	.2379	--	11.12	--	17.24
		ZN.0325	.0260	.1424	--	5.48	--	4.38
3	WNW	AM-01	AM-05A	AM-02	--			
		AS.0016	.0023	.0231	--	10.04	--	14.44
		CD.0008	.0008	.0014	--	1.75	--	1.75
		PB.0192	.0496	.4698	--	9.47	--	24.47
		ZN.0368	.0909	.3007	--	3.31	--	8.17
4	WNW	AM-01	AM-04	AM-02	--			
		AS.0013	.0016	.0118	--	7.38	--	9.08
		CD.0007	.0008	.0009	--	1.125	--	1.29
		PB.0391	.1026	.2335	--	2.28	--	5.97
		ZN.0580	.0561	.1747	--	3.11	--	3.01
INCREASE VS REMOTE BACKGROUND								
5	NONE	AM-01	AM-02	AM-04	AM-05B	AM-02	AM-04	AM-05
		AS.0016	.0029	.0025	.0019	1.81	1.56	1.19
		CD.0008	.0008	.0008	.0010	1.0	1.0	1.25
		PB.0127	.0799	.0444	.0309	6.29	3.49	2.43
		ZN.0350	.0849	.0444	.0522	2.43	1.27	1.49

-- No secondary downgradient

*Ref. 2*

TABLE 5  
SOIL CONCENTRATION OF TASK 1 AND 2 METALS  
IN RICHARDSON FLAT AREA

	CNTY RD 2' SO-01	CNTY RD 10' SO-02	US40 2' SO-03	US40 50' SO-04	HOTEL SO-05	WESTER U.S. AVERAG
Aluminum	3790*	11900*	11300*	10500*	13200*	58000
Antimony	18e	70e	89e	40e	104e	.47
Arsenic	87	7.7	7.5	2.1u	188	5.5
Barium	95	200	144	668	225	580
Beryllium	.4ue	5.2e	43e	1.4e	1.0e	.68
Cadmium	3.9*	12*	12*	4.5*	38*	.35
Calcium	46900*	14300*	12900*	6350*	14900*	--
Chromium	17*	443*	743*	4.3*	21*	41
Cobalt	[2.9]e	14e	159e	11e	21e	7.1
Copper	21	44	100	15	222	21
Iron	10600	94200	10300	33900	46100	21000
Lead	477*	133*	418*	13*	3479*	17
Magnesium	14200*	55800*	36700*	3560*	5550*	--
Manganese	284	8320	15400	112	1730	380
Mercury	1.0*	0.5*	0.2*	0.5*	3.9*	.05
Nickel	12	44	52	21	34	15
Potassium	[436]e	1480e	[965]e	1160e	1960e	--
Selenium	1.0u	1.0u	1.0u	1.0u	6.9	.23
Silver	2.0u	2.0u	2.0u	2.1u	18	.5
Sodium	[336]	5620	5130	[976]	1320	--
Thallium	2.4	2.0u	2.0u	2.1u	13	.2
Vanadium	11e	561e	1390e	81e	12e	70
Zinc	440*	331*	84*	96*	4630*	55

r Spike recovery beyond the  $\pm 25\%$  control limit.

\* Duplicate results exceeded the relative percent difference limit of  $\pm 35\%$ .  
Consider an estimate.

e An interference may be present for these elements.

[] Results is below CLP contract detection limit but above the detection limit for instrument.

Page 2

TABLE 6: AIR SAMPLING DATA

LOCATION	DATE	START TIME	STOP TIME	COMMENTS
AM-01	7/8/86	1745	0257	Blow down, sample not used
AM-02	7/8/86	2125	0634	
AM-03	7/8/86	2012		
AM-04	7/8/86	1929	0538	
AM-05	7/8/86	2032	0303	
AM-01	7/9/86	1125	2309	
AM-02	7/9/86	1410	0146	
AM-03	7/9/86	1333	2323	
AM-04	7/9/86	1315	2325	
AM-05	7/9/86	1504	0243	
AM-01	7/10/86	1005	2055	Sheep grazing in area of sampler
AM-02	7/10/86	1230	2219	
AM-03	7/10/86	1110	2228	
AM-04	7/10/86	1110	2224	
AM-05	7/10/86	1158	2257	
AM-01	7/11/86	1030	2236	Sampler moved 300 yards to south.
AM-02	7/11/86	1244	2308	
AM-03	7/11/86	1123	2228	
AM-04	7/11/86	1128	2229	
AM-05	7/11/86	1214	2244	
AM-01	7/12/86	1025	2153	
AM-02	7/12/86	1218	2316	
AM-03	7/12/86	1129	2211	
AM-04	7/12/86	1129	2211	
AM-05	7/12/86	1154	2140	

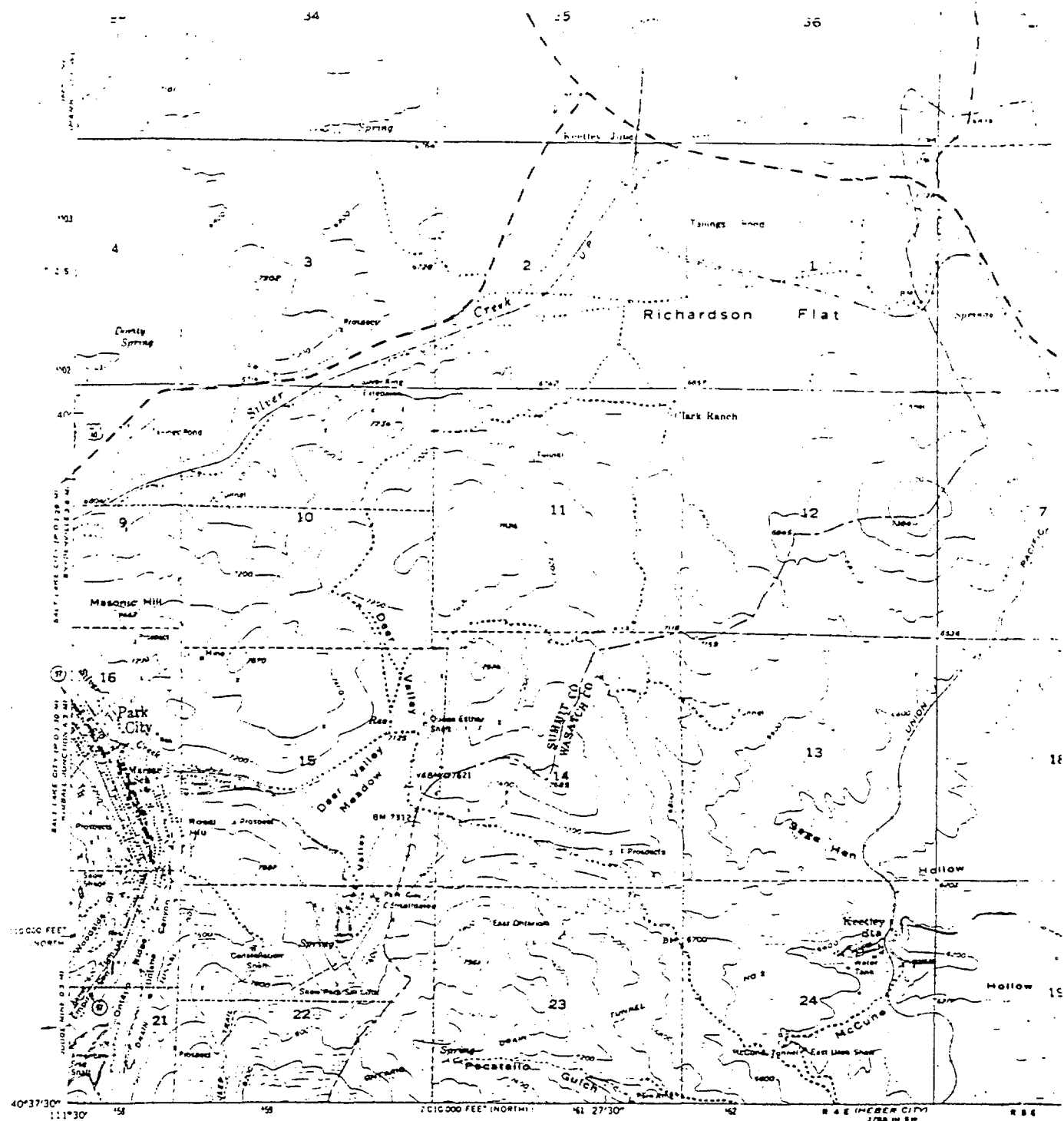
Ref 2

## REFERENCES

- Bryan, R.J., R.J. Gordon, and H. Menck. Comparison of High Volume Air Filter Samples at Varying Distances from Los Angeles Freeway. University of Southern California, School of Medicine, Los Angeles, CA. Presented at 66th Annual Meeting of Air Pollution Control Association. Chicago, IL. June 24-28, 1973. APCA 73-158.)
- Daines, R.H., H. Moto, and D.M. Chilko. Atmospheric Lead: Its Relationship to Traffic Volume and Proximity to Highways. Environ. Sci. and Technol., 4:318, 1970.
- Johnson, E.E., et al. Epidemiologic Study of the Effects of Automobile Traffic on Blood Lead Levels, Southwest Research Institute, Houston, TX. Prepared for U.S. Environmental Protection Agency, Research Triangle Park, NC. EPA-600/1-78-055, August 1978. Air Quality Criteria for Lead. Office of Research and Development, U.S. Environmental Protection Agency, Washington, D.C. EPA-600/8-77-017. December 1977.
- Lyman, D.R. The Atmospheric Diffusion of Carbon Monoxide and Lead from an Expressway. Ph.D. Dissertation, University of Cincinnati, Cincinnati, OH. 1972.
- Shacklette, H.T., and Boerngen, J.G.; 1984: Element Concentrations in Soils and other Surficial Materials of the Conterminous United States. U.S. Geol. Surv. Professional Paper 1270. 105pp.

Ref-2

APPENDIX I  
FIGURES



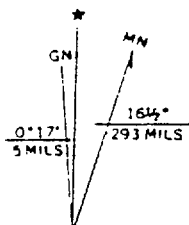
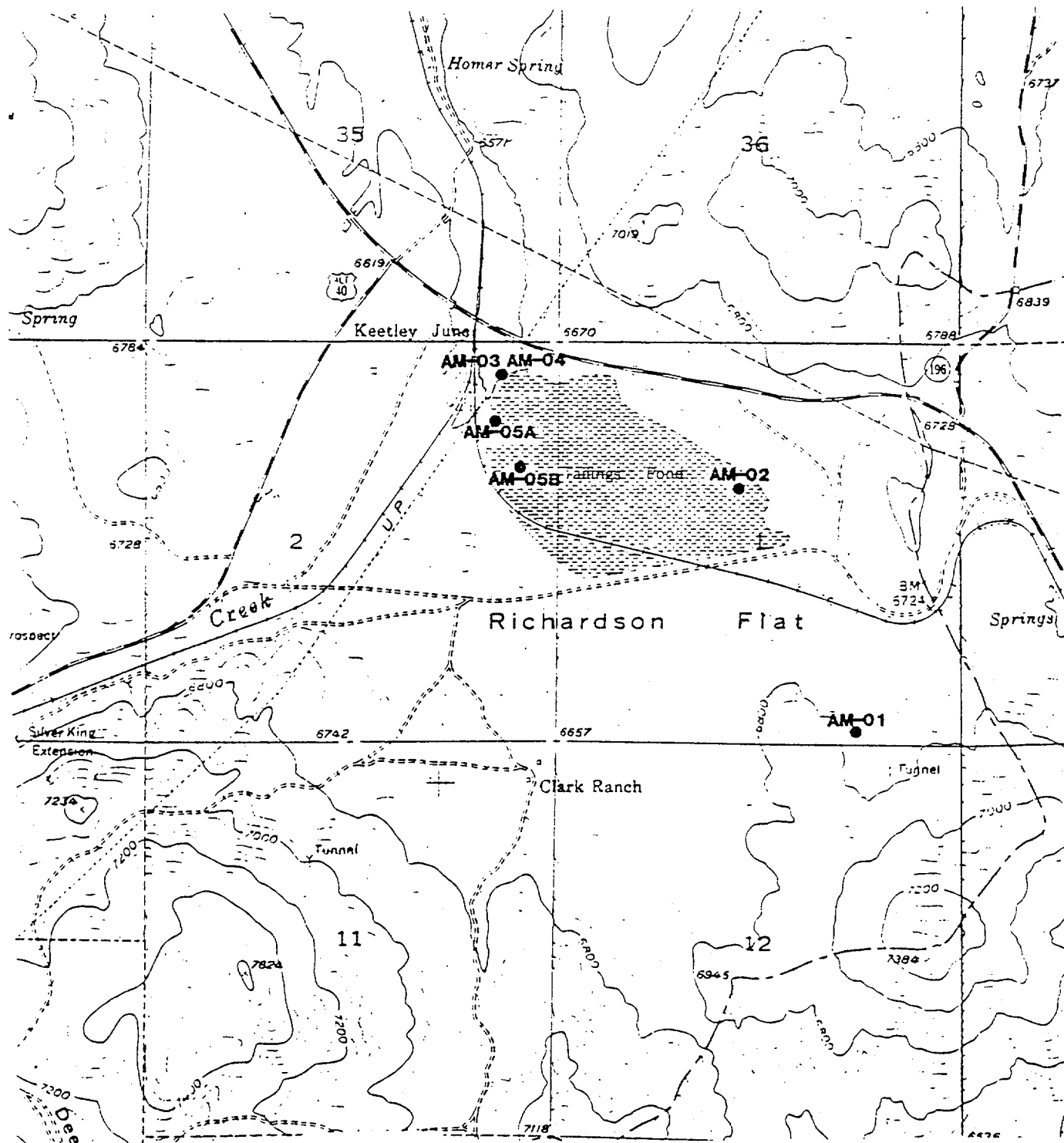
Maped, edited, and published by the Geological Survey  
 Control by USGS and US&GS  
 Topography from aerial photographs by multiplex methods  
 Aerial photographs taken 1953. Field check 1955  
 Photocopy projection: 1927 North American datum  
 10,000 foot grid based on Utah coordinate system,  
 north and central zones  
 Dashed land lines indicate approximate locations

Scale 1:24,000  
 1 inch = 2,000 feet  
 1 centimeter = 200 meters

NATIONAL GEODETIC VERTICAL DATUM OF 1929  
 HORIZONTAL INTERVAL 40 FEET

MAP COMPLIES WITH NATIONAL MAP ACCURACY STANDARDS  
 FOR SALE BY U.S. GEOLOGICAL SURVEY DENVER, COLORADO 80225 OR RESTON, VIRGINIA 22092  
 A FOLDER DESCRIBING TOPOGRAPHIC MAPS AND SYMBOLS IS AVAILABLE ON REQUEST

<b>FIELD INVESTIGATIONS OF UNCONTROLLED          HAZARDOUS WASTE SITES</b> <b>TASK REPORT TO THE E.P.A.</b>	
<b>TITLE:</b> <b>Park City Utah Area Map</b>	
<b>T.D.D. R8-8605-12</b>	
<b>ecology and environment, inc.</b> <b>DENVER, COLORADO</b>	<b>FIG.1</b>
Date _____ Drawn by _____ Scale _____	



UTM GRID AND 1955 MAGNETIC NORTH  
DECLINATION AT CENTER OF SHEET

0 1000 2000 3000 4000 5000 6000 7000 FEET

0 5 10 15 20 25 30 35 40 45 50 55 60 65 70 75 80 85 90 95 100 KILOMETER

CONTOUR INTERVAL 40 FEET

FIELD INVESTIGATIONS OF UNCONTROLLED  
HAZARDOUS WASTE SITES  
TASK REPORT TO THE E.P.A.

TITLE: Richardson Flat  
  
Air Sample Locations

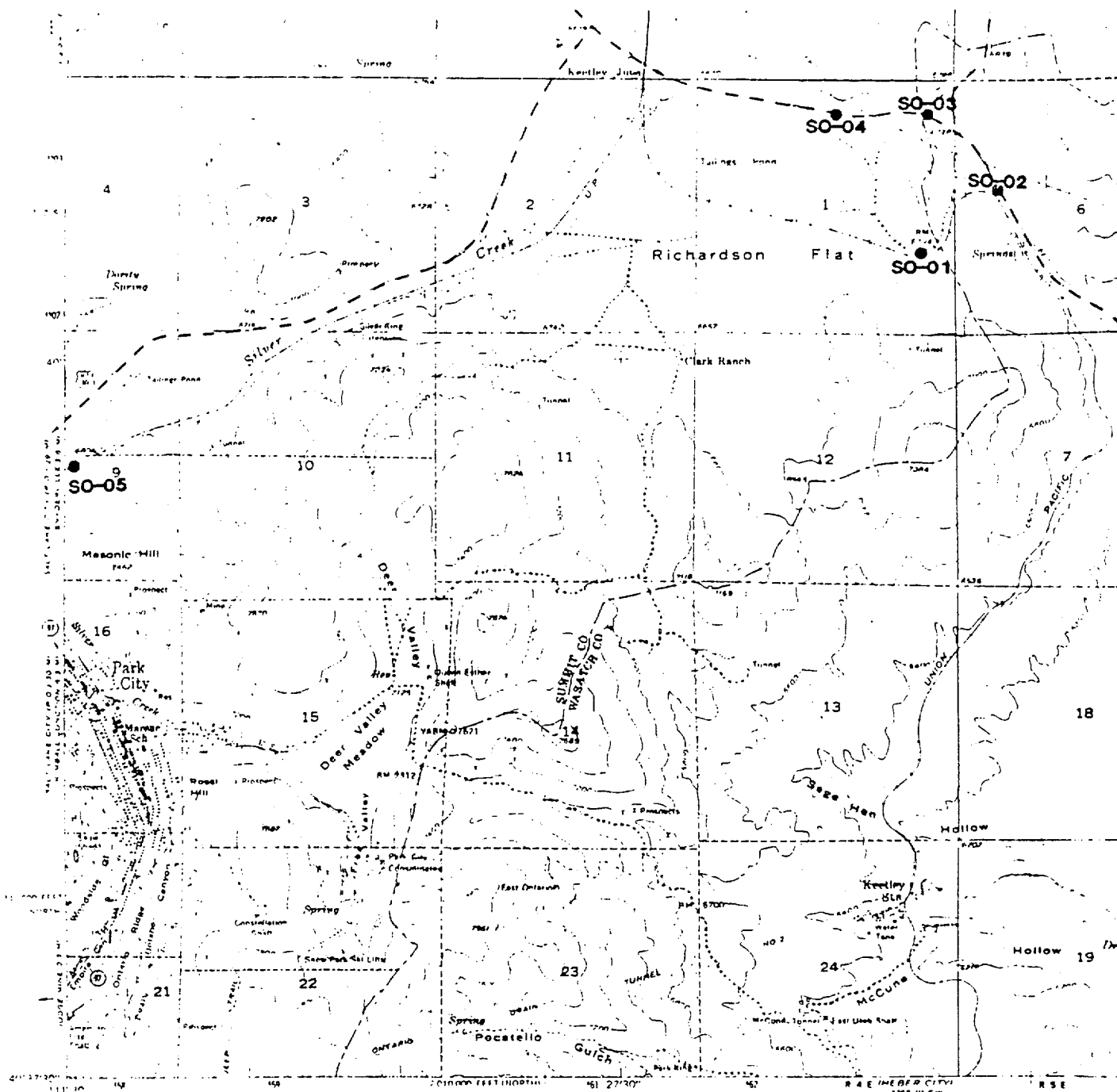
T.D.D R8-8605-12

ecology and environment, inc.  
DENVER, COLORADO

FIG.2

Date \_\_\_\_\_ Drawn by \_\_\_\_\_ Scale \_\_\_\_\_





**FIELD INVESTIGATIONS OF UNCONTROLLED  
HAZARDOUS WASTE SITES  
TASK REPORT TO THE E.P.A.**

**TITLE: Richardson Flat**

**Soil Sample Locations**

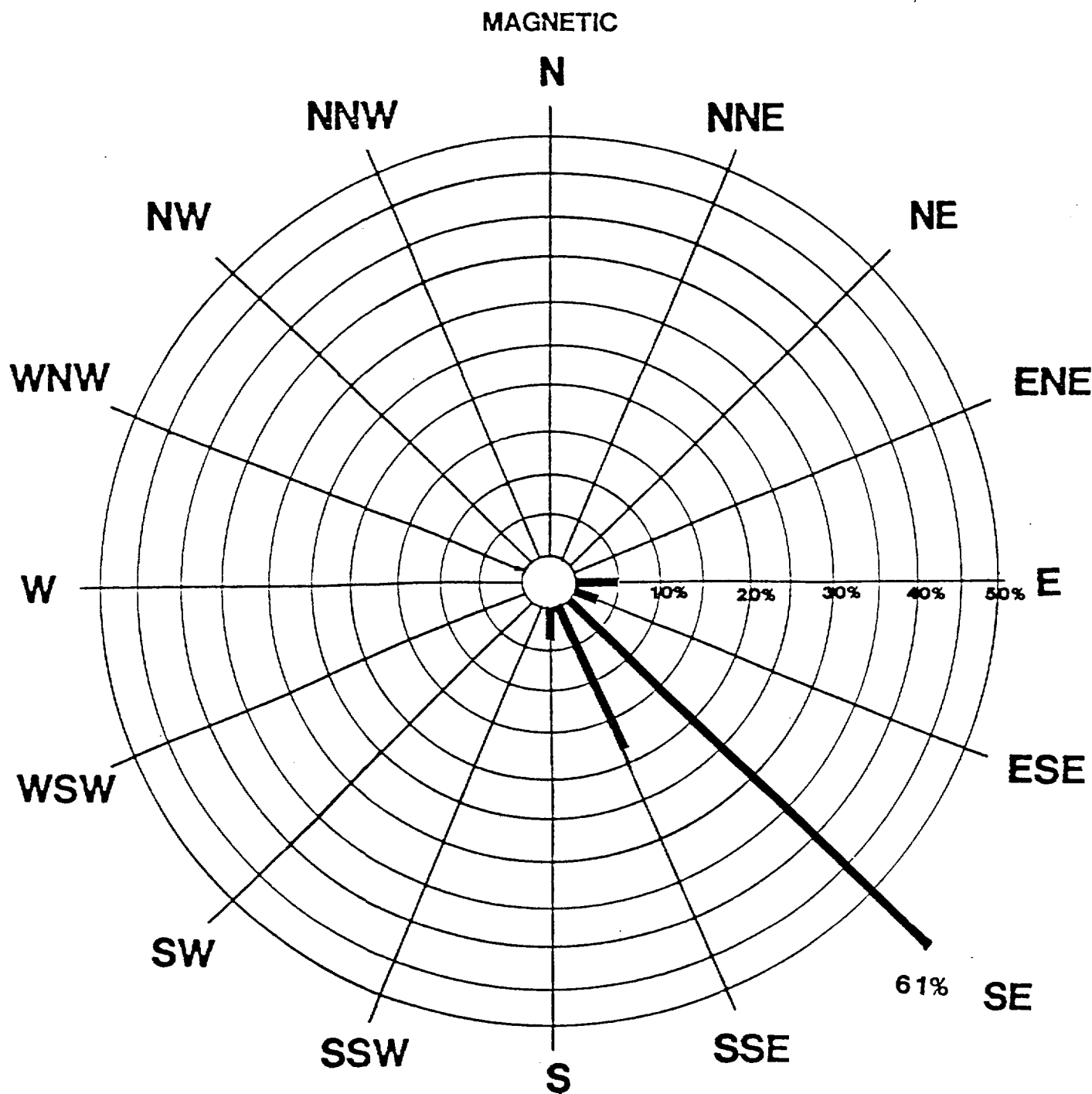
**T.B.D R8-8605-12**

**ecology and environment, inc.  
DENVER, COLORADO**

**FIG.3**

Date \_\_\_\_\_ Drawn by \_\_\_\_\_ Scale \_\_\_\_\_

Ref. 2



FIELD INVESTIGATIONS OF UNCONTROLLED  
HAZARDOUS WASTE SITES  
TASK REPORT TO THE E.P.A.

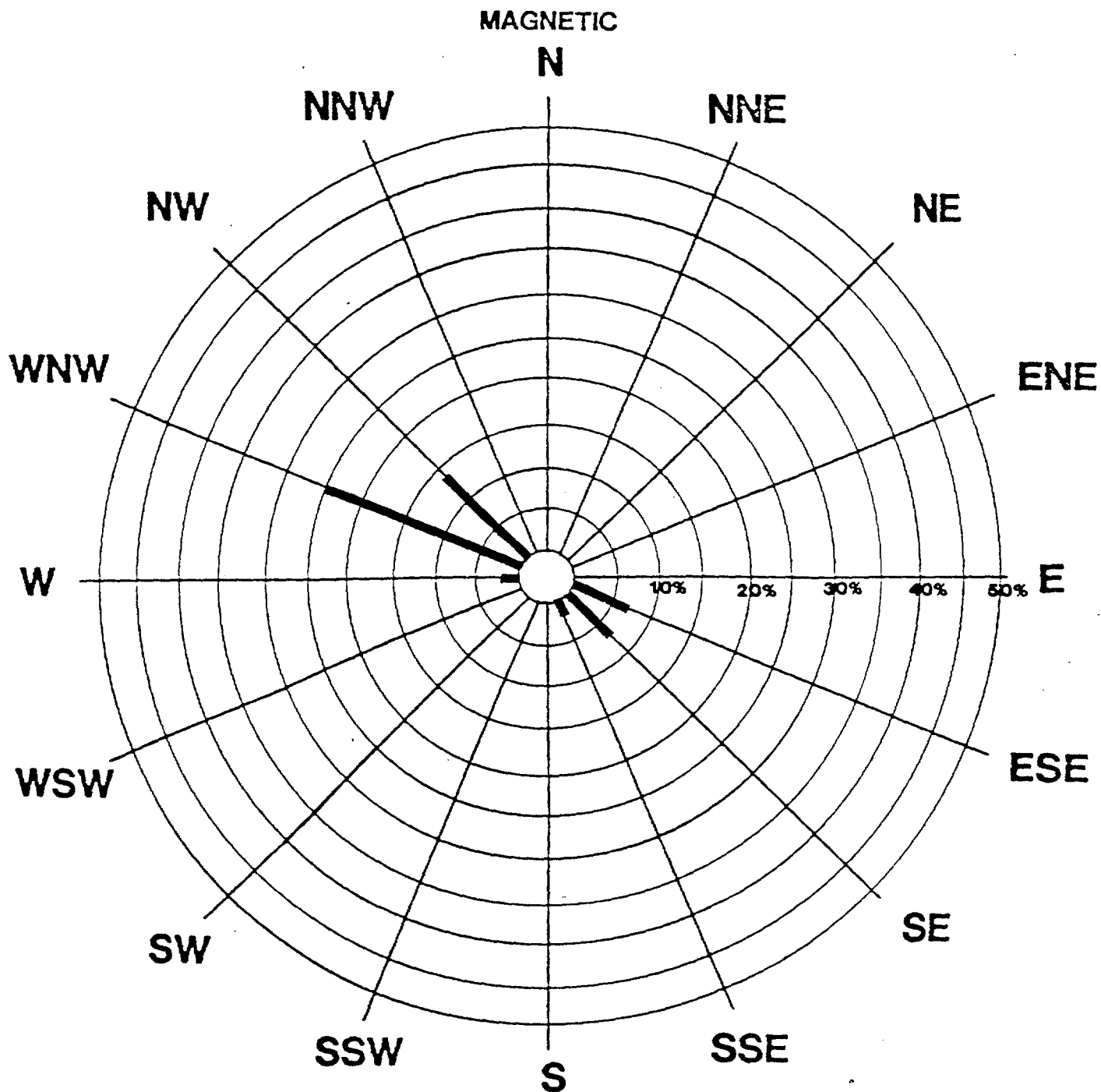
TITLE: Richardson Flats Wind Rose in % of  
Sample Time for DAY 1 1800 - 0700 Hours

July 8-9, 1988

T.B.S. R8-8805-12

ecology and environment, inc.  
DENVER, COLORADO

FIG.4



37.5 % Calm

FIELD INVESTIGATIONS OF UNCONTROLLED  
HAZARDOUS WASTE SITES  
TASK REPORT TO THE E.P.A.

TITLE: Richardson Flats Wind Rose in % of  
Sample Time for DAY 2 1100 -0300 Hours

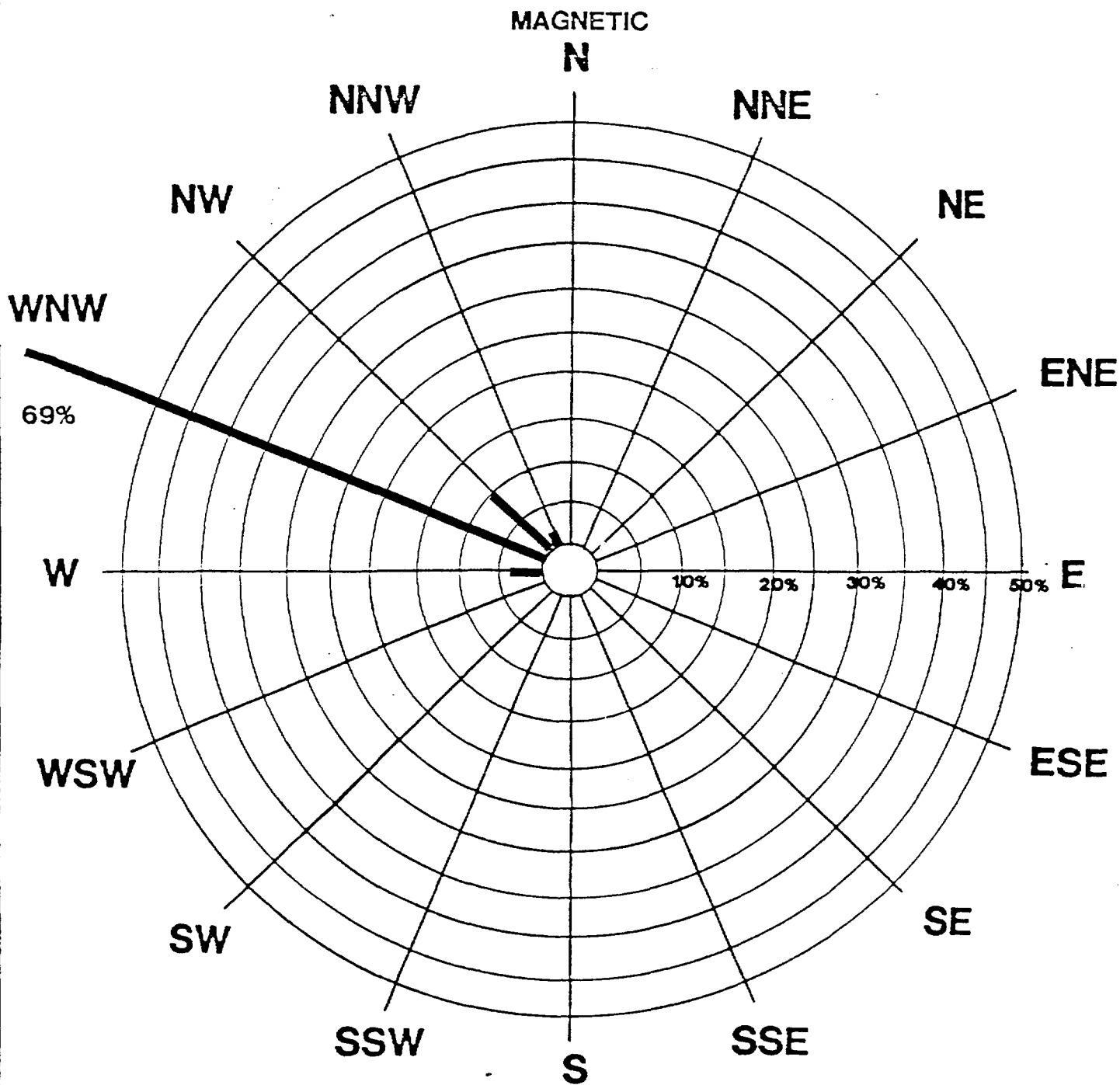
July 9-10, 1988

T.S.S. R8-8605-12

ecology and environment, inc.  
DENVER, COLORADO

FIG.5

Ref 2



FIELD INVESTIGATIONS OF UNCONTROLLED  
HAZARDOUS WASTE SITES  
TASK REPORT TO THE E.P.A.

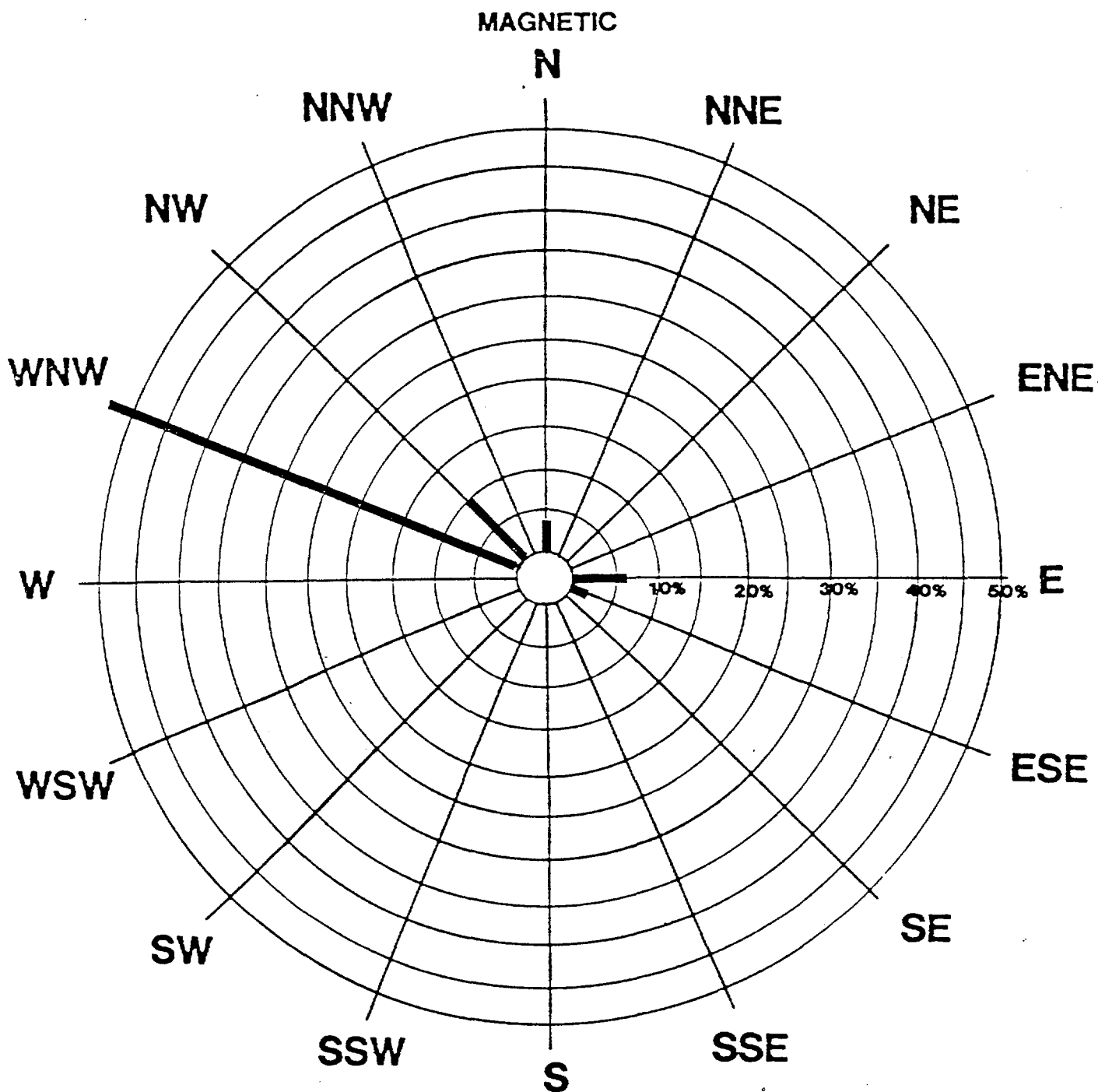
TITLE: Richardson Flats Wind Rose in % of  
Sample Time for DAY 3 1000-2300 Hours

July 10, 1986

T.S.B. R8-8605-12

ecology and environment, inc.  
DENVER, COLORADO

FIG.6



**FIELD INVESTIGATIONS OF UNCONTROLLED  
HAZARDOUS WASTE SITES  
TASK REPORT TO THE E.P.A.**

**TITLE:** Richardson Flats Wind Rose in % of  
Sample Time for DAY 4 1000-2300 Hours  
July 11, 1986

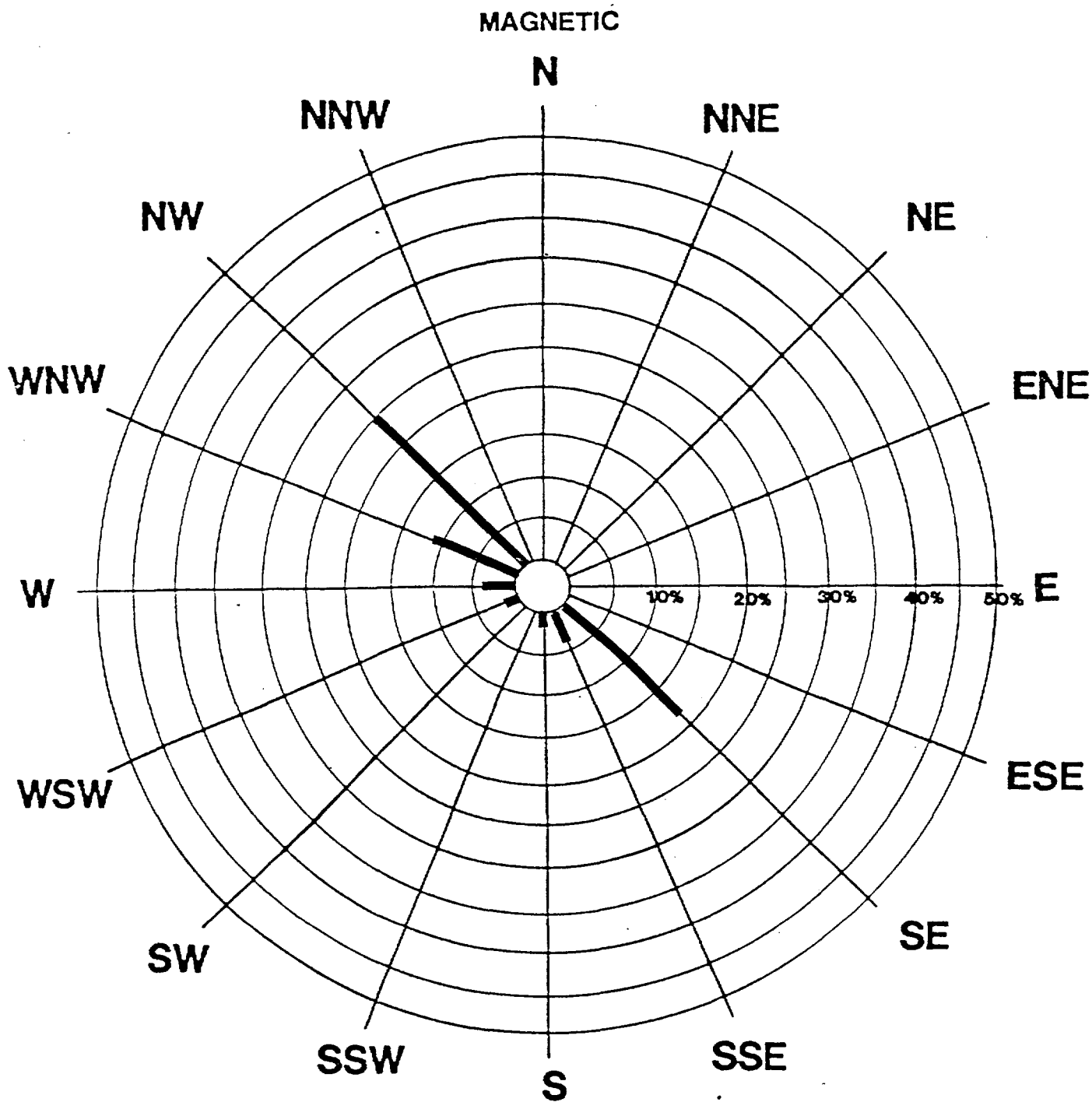
**T.D.S.** R8-8605-12

**ecology and environment, inc.**  
DENVER, COLORADO

**FIG.7**

Date \_\_\_\_\_ Drawn by \_\_\_\_\_ Scale \_\_\_\_\_

R41.2



21.4 % CALM

FIELD INVESTIGATIONS OF UNCONTROLLED HAZARDOUS WASTE SITES TASK REPORT TO THE E.P.A.	
TITLE: Richardson Flats Wind Rose in % of Sample Time for DAY 5 1000-2400 Hours July 12, 1986	
T.B.S. R8-8605-12	
ecology and environment, inc. DENVER, COLORADO	FIG.8
Date _____ Drawn by _____	

# RICHARDSON FLATS WIND SPEED DAY 1

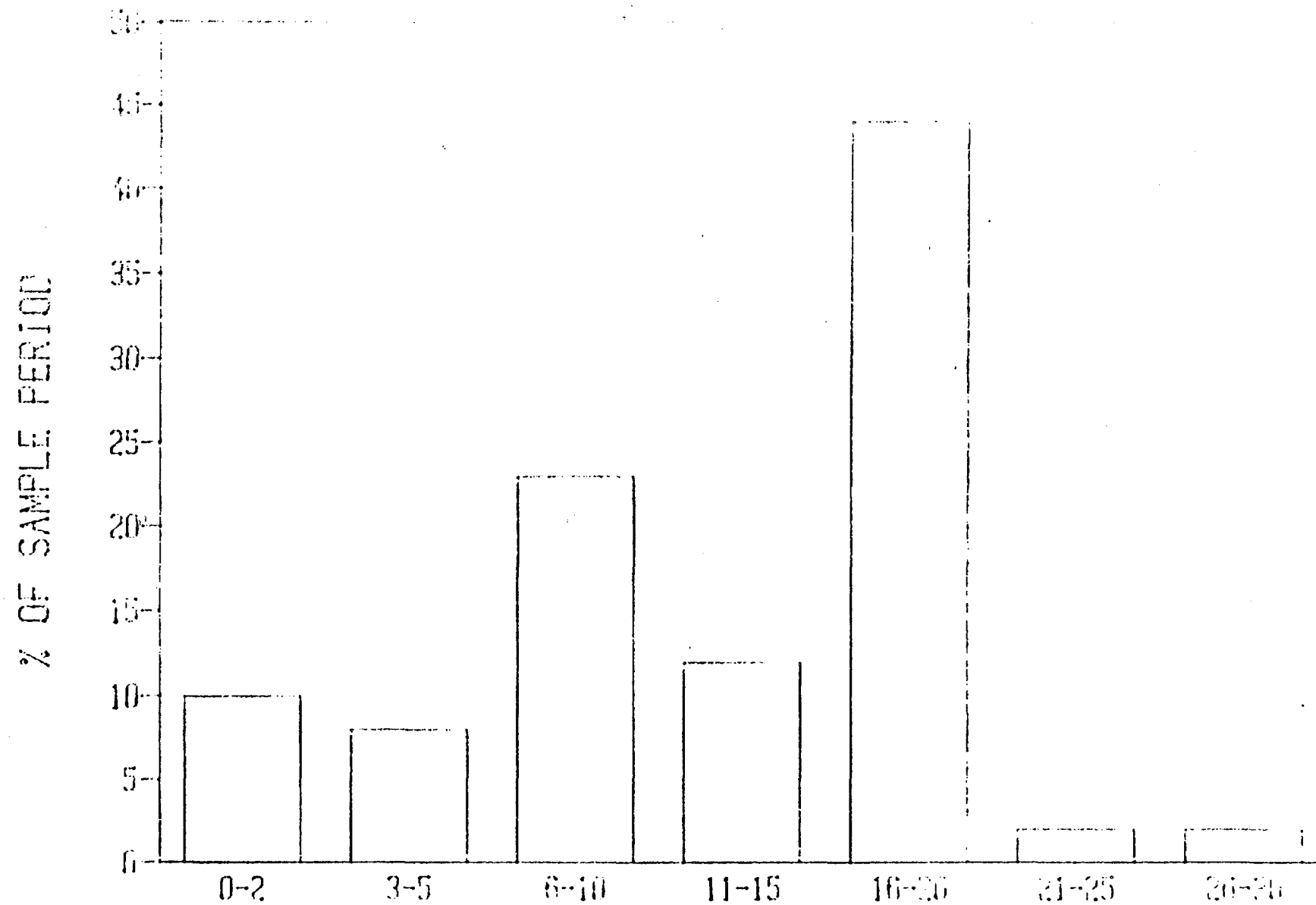


FIG.9 WIND SPEED IN MPH

*Handwritten signature*

# RICHARDSON FLATS WIND SPEED DAY 2

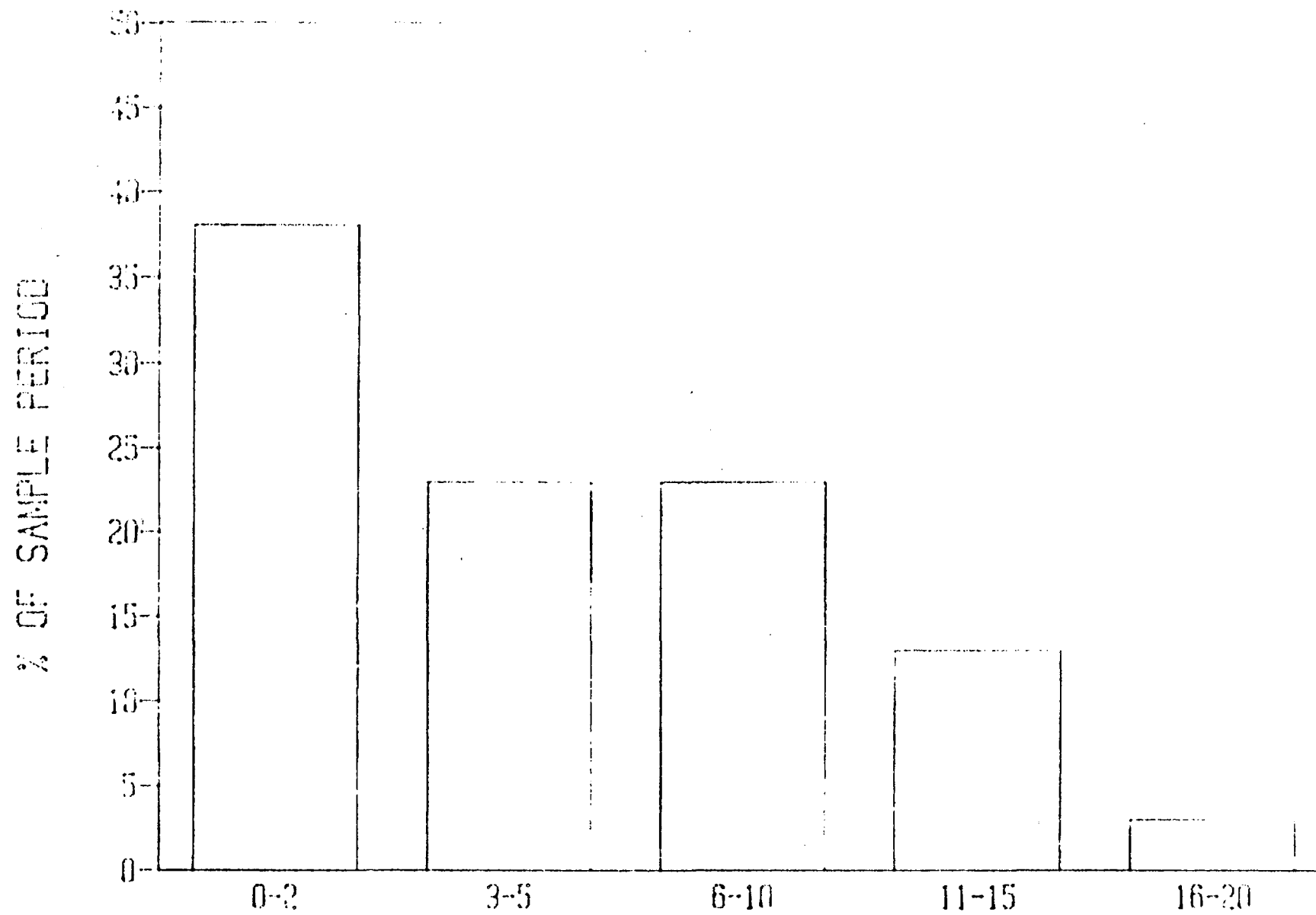


FIG.10 WIND SPEED IN MPH

Fig. 2



RICHMOND PLATS WIND SPEED DAY 3

% OF SAMPLE PERIOD

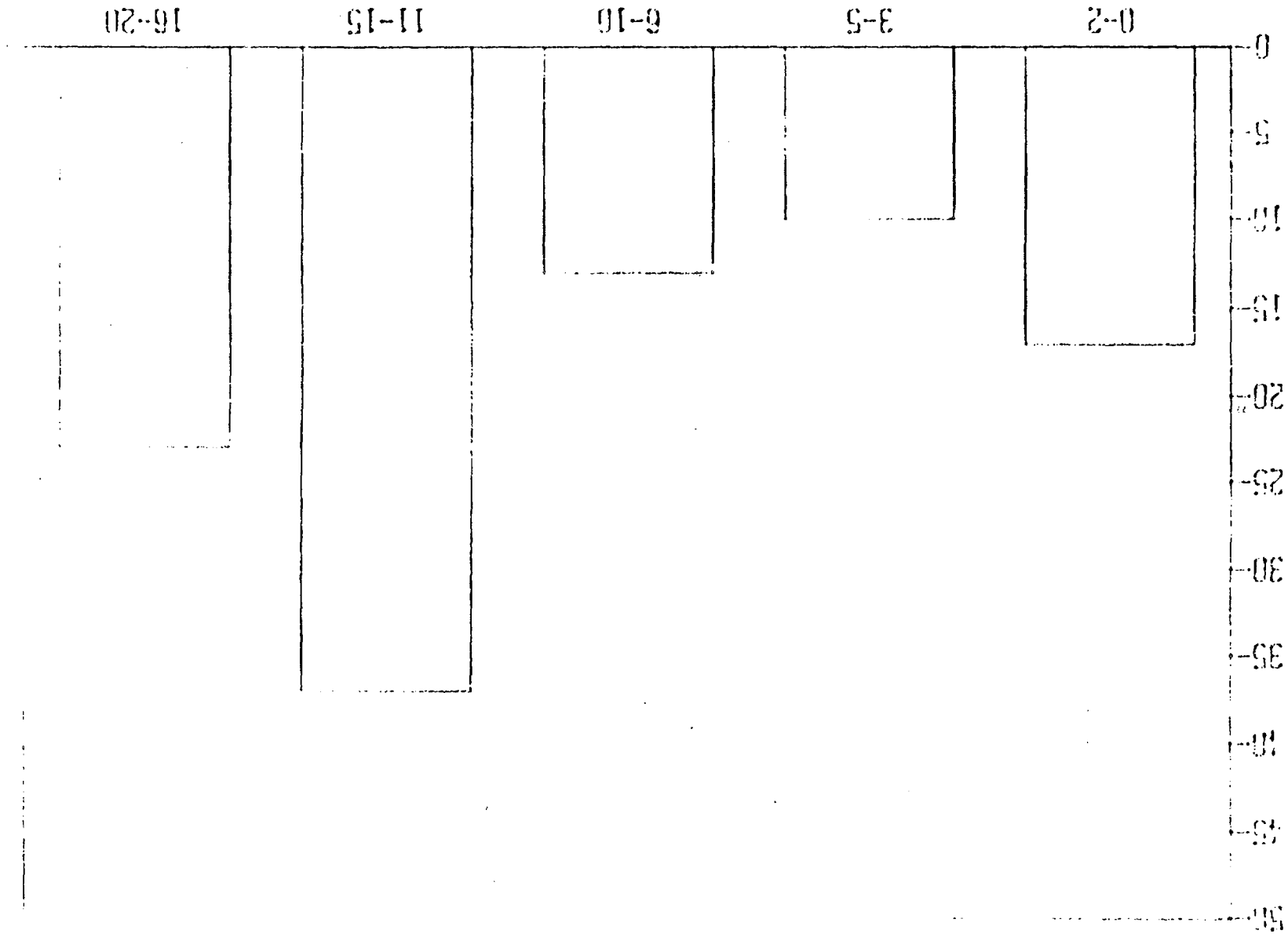


FIG. 11 WIND SPEED IN MPH

Ref.

% OF SAMPLE PERIOD

# ROCKERSHIP FLATS WIND SPEED MAY 4

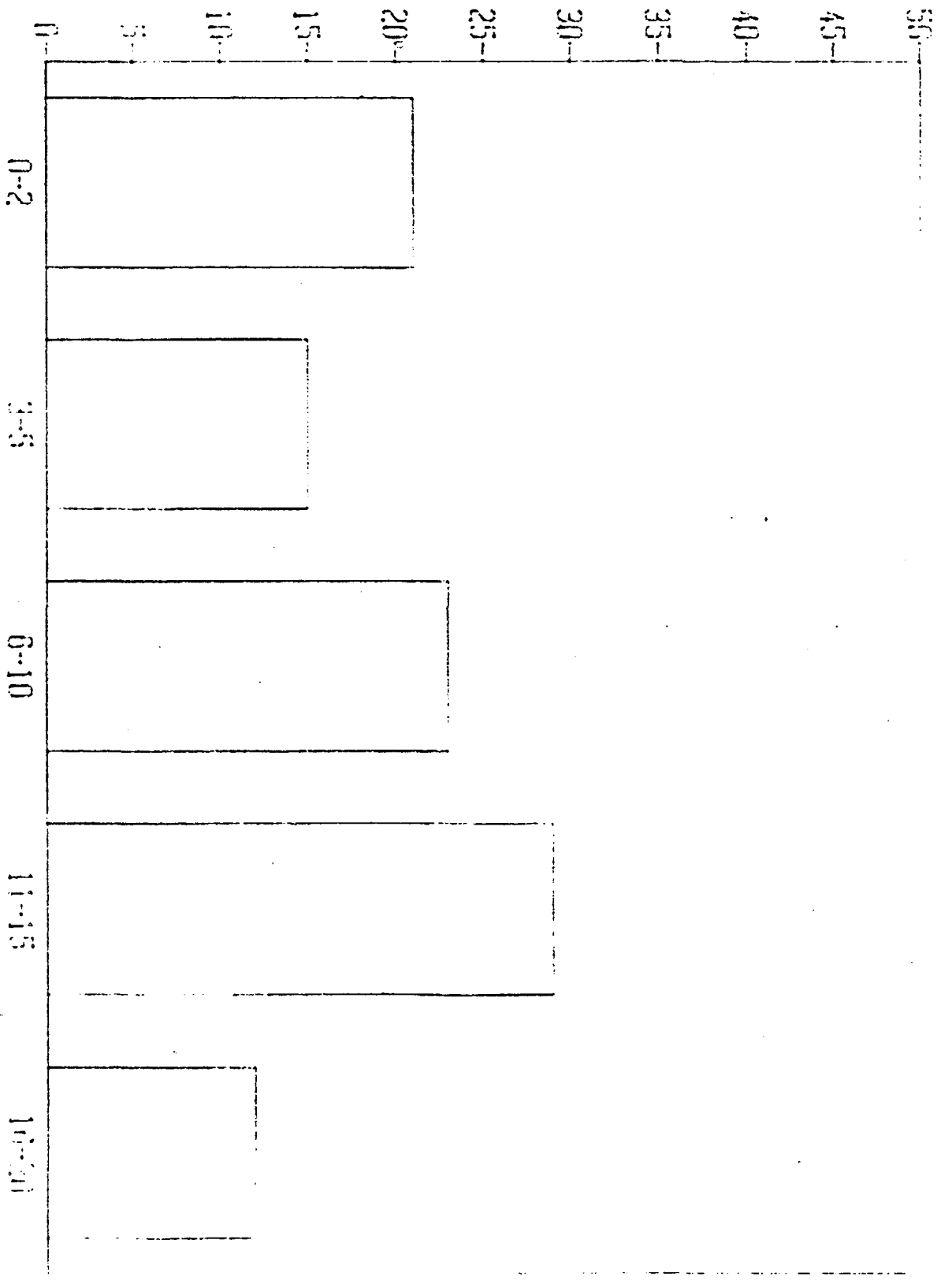


FIG.12 WIND SPEED IN MPH

Ref 2

# RICHMOND FLATS WIND SPEED DAY 5

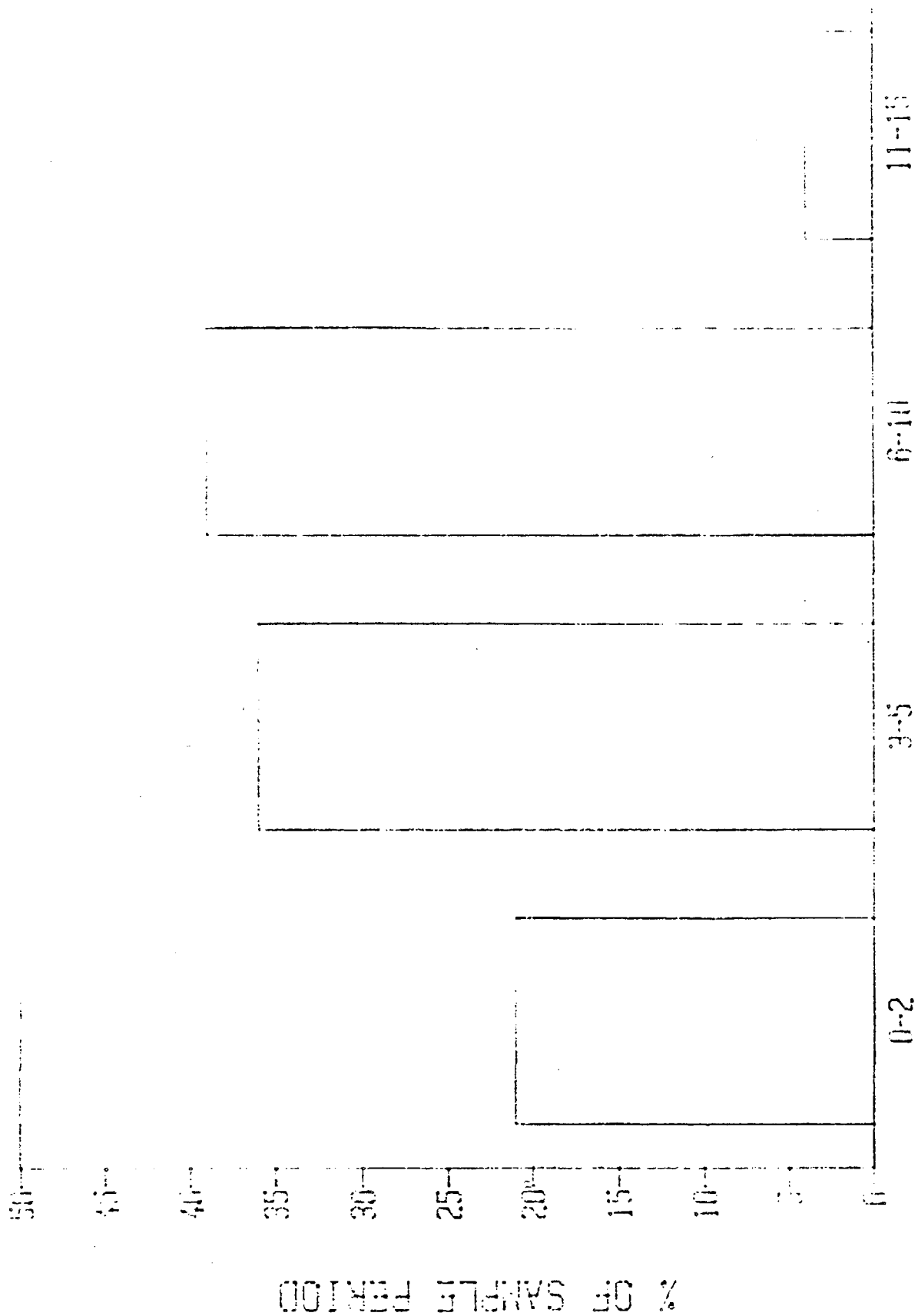


FIG.13 WIND SPEED IN MPH

Ref 2

# RICHARDSON FLATS WIND SPEED DAY 1

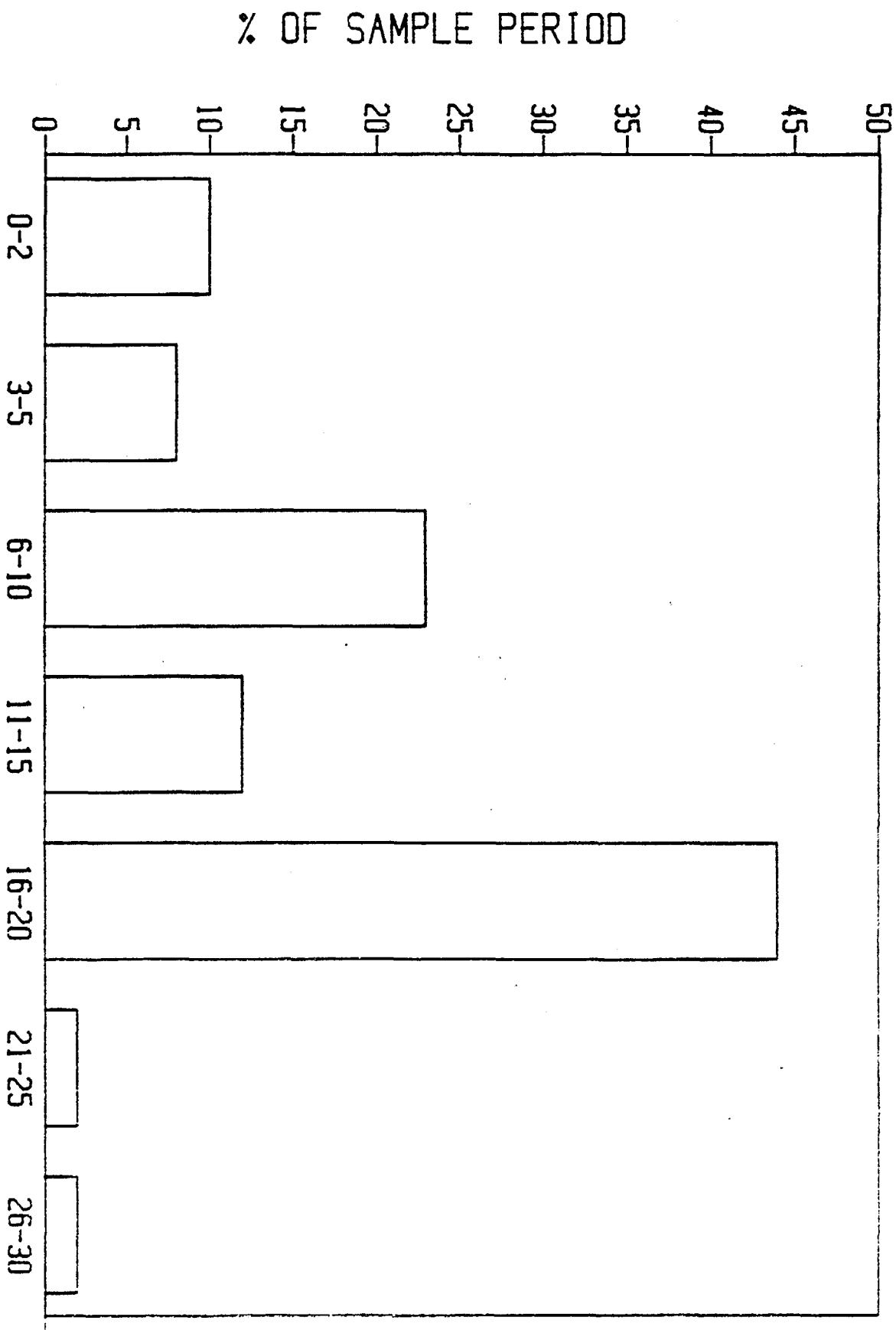


FIG.9 WIND SPEED IN MPH

*Fig 9*

# RICHARDSON FLATS WIND SPEED DAY 2

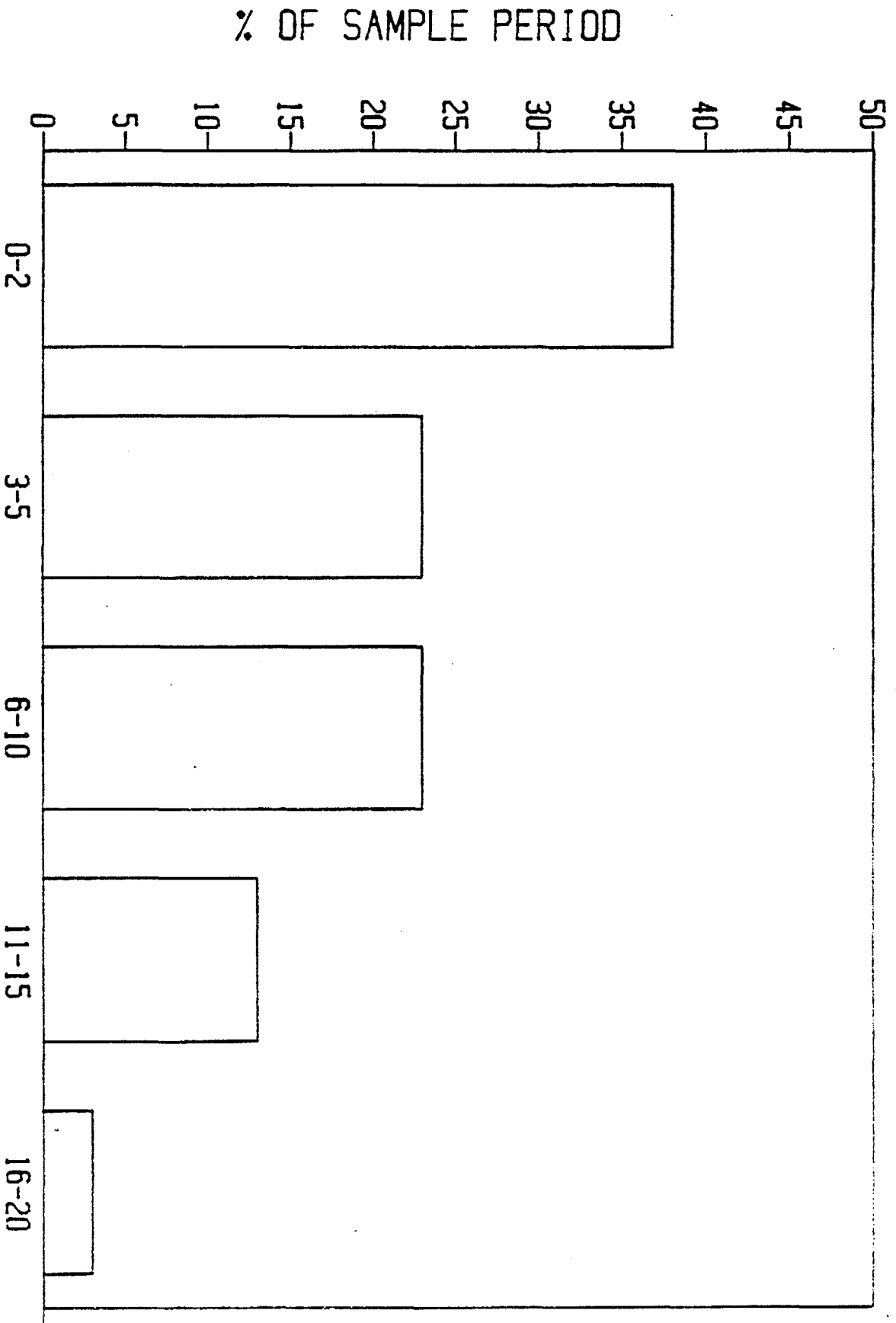


FIG.10 WIND SPEED IN MPH

C. P. H.

# RICHARDSON FLATS WIND SPEED DAY 3

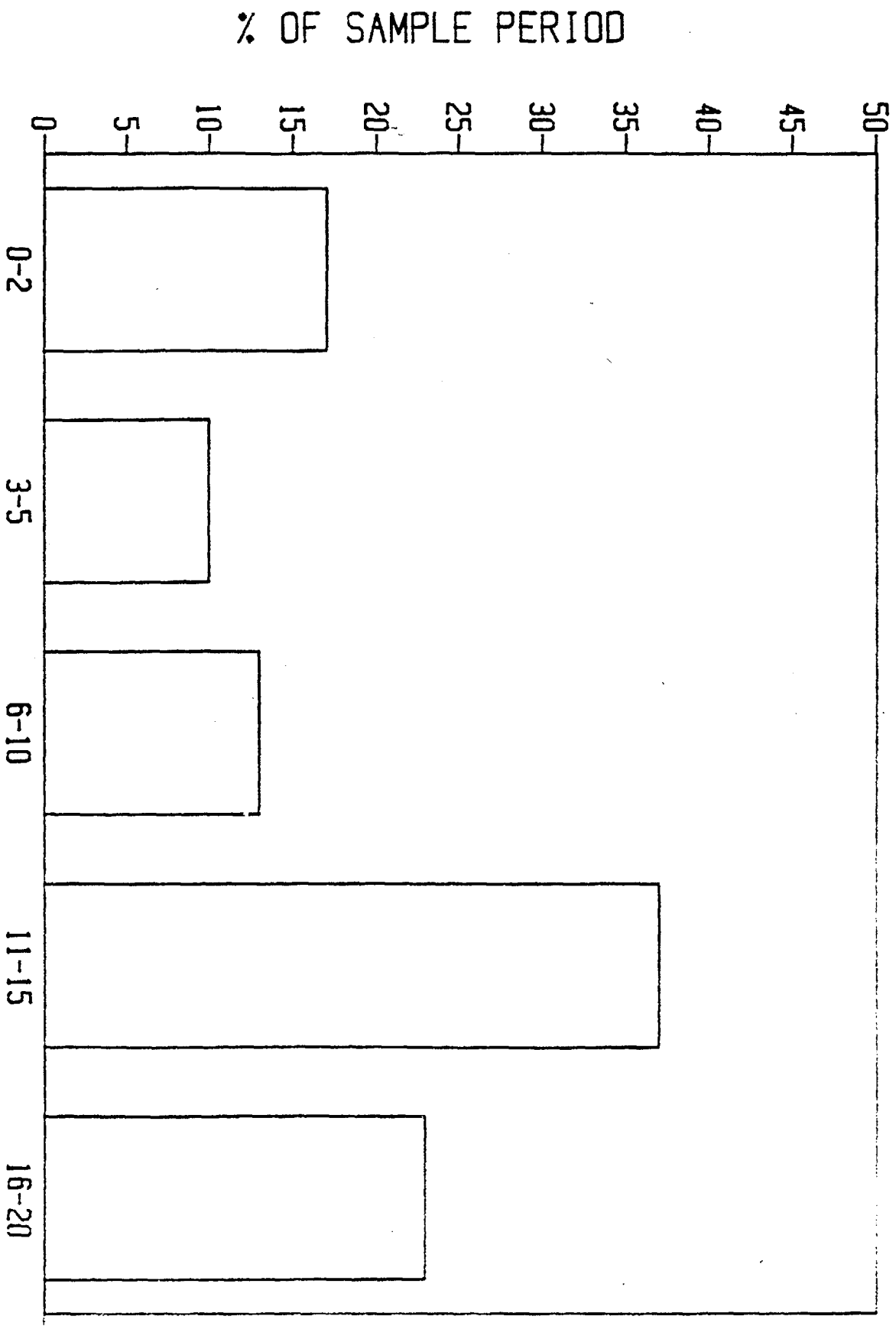


FIG.11 WIND SPEED IN MPH

*CPD*

# RICHARDSON FLATS WIND SPEED DAY 4

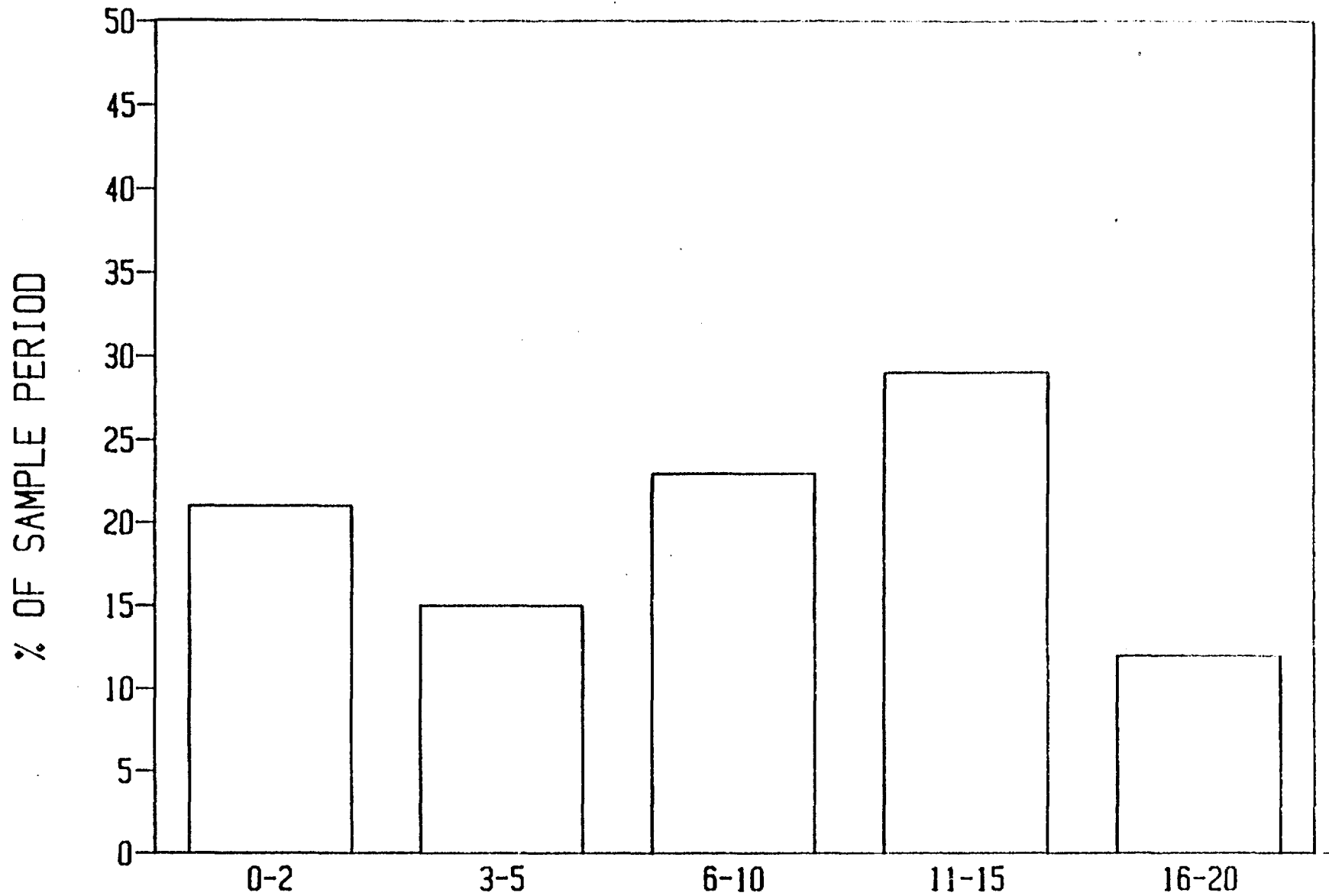


FIG.12 WIND SPEED IN MPH

2/2/77

# RICHARDSON FLATS WIND SPEED DAY 5

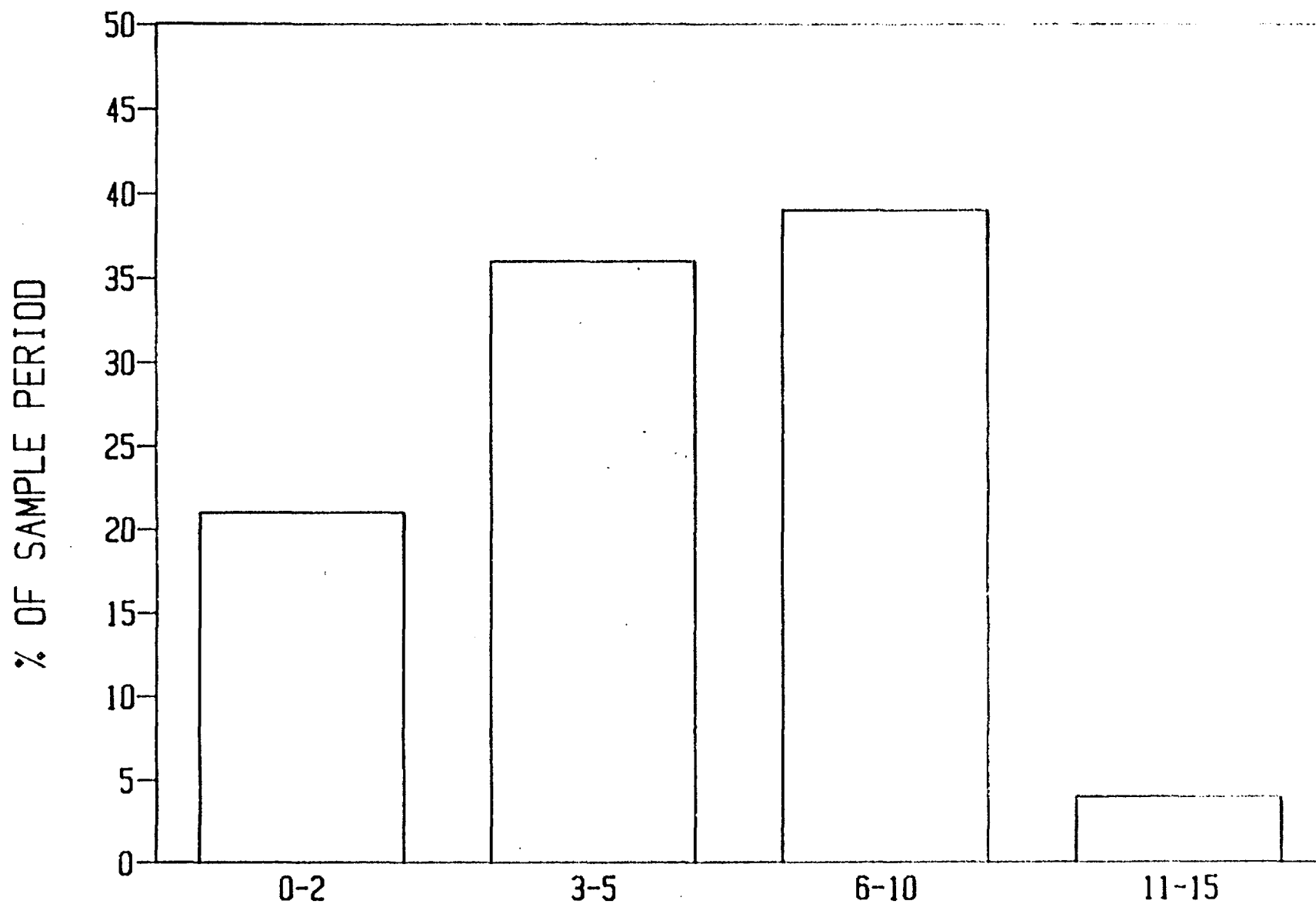


FIG.13 WIND SPEED IN MPH

*Handwritten signature*



*Ref-2*

APPENDIX II  
RAW RESULTS AND QA REPORT

Ref 2

REGION VIII SUMMARY OF DATA QUALITY ASSURANCE REVIEW

Case No. SAS 23564 Project No. \_\_\_\_\_  
Site Richardson Flats  
Contractor Laboratory Hittman Ebasco Assoc.  
Data Reviewer L Roberts Date of Review 9/3/86  
Sample Matrix Cellulose Filters

Sample No. See Laboratory Cover Sheet.  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

- ( ) Data are acceptable for use  
( ) Data are acceptable for use with qualification noted <sup>below</sup> above  
( ☒ ) Data are preliminary - pending action or verification  
( ) Data are unacceptable

Action required by DPO?

No \_\_\_\_\_ Yes ☒ Following items require action Detection limits

requested by region were not met by the laboratory.  
Lab should resubmit furnace results with RSD values.

Action required by Project Officer (PO)?

No ☒ Yes \_\_\_\_\_

**Following are our findings:**

Cellulose air filters were submitted for analysis of arsenic, cadmium, lead and zinc. This was a SAS request.

The spike recovery for cadmium was 65%. The cadmium results, therefore, have been flagged with an "R". The zinc Laboratory Control Sample recovery was only 60%. The zinc results may be biased low and have been flagged as estimated (J).

Two aspects of the contract were not fulfilled by the laboratory. Detection limits of  $1 \mu\text{g/l}$  were specified by the SAS contract. However, the actual instrument detection limits for As, Cd, Pb and Zn were from  $3.8 - 4.8 \mu\text{g/l}$ . Also, the RSD results for duplicate furnace injections were not reported. The duplicate results appear to agree well, however.

Ref 2

FORM A

Inorganic Data Completeness Checklist

- ✓ Inorganic analysis data sheets
- ✓ Initial calibration and calibration verification results
- ✓ Continuing calibration verification
- ✓ Instrument Detection limits
- ✓ Duplicate results
- ✓ Spike results
- ✓ ICP interference check sample
- ✓ Blank results
- NR Serial Dilution Results
- ✓ Raw data for calibration standards
- ✓ Raw data for blanks
- ✓ Raw data for samples
- ✓ Raw data for duplicates
- ✓ Raw data for spikes
- ✓ Raw data for furnace AA
- NR Percent solids calculation - soils only
- ✓ Traffic Reports

Fry 2

FORM B

Initial calibration data were reviewed. Initial calibration data were included in the package and met all contract requirements.

YES ✓

NO \_\_\_\_\_

Comments:

Continuing calibration data were reviewed and these data met all contract requirements.

YES ✓

NO \_\_\_\_\_

Comments:

A blank was run with every twenty samples or less per case.

YES ✓

NO \_\_\_\_\_

Comments:

*two prep blanks were prepared*

How many elements were detected above the required detection limit? 1

*lead at 7 ug/L*

How many elements were detected at greater than one half the amount detected in any sample? 0

Comments:

Rep. 7

FORM C

The interference check sample was run twice per eight hour shift. No massive interferences were present.

YES ☒

NO ☐

Comments:

All matrix spike requirements were met.

YES ☒

NO ☐

Comments:

*Corrections made on form were difficult to read and not initiated. a clean filter was spiked, all recoveries were within 65-120%. Cadmium results are flagged due to a 65% spike recovery.*

A duplicate sample was run with every twenty or fewer samples of a similar matrix, or one per case, whichever is more frequent.

YES ☒

NO ☐

The RPD's were tabulated.

YES ☒

NO ☐

Comments:

All inorganic detection limits met the contract requirements.

YES ☐

NO ☒

Comments:

*SAS request specified 1 ug/L detection limits for the four elements. The lab did not reach these.*

Page 2

FORM D

All Laboratory Control Samples met specified contract limits.

YES \_\_\_\_\_

NO ✓

Comments:

*Time 60% Recovery - zinc results estimated.  
LCS performed as required.*

Serial Dilution requirements were met.

YES \_\_\_\_\_

NO \_\_\_\_\_

*Not Required*

The Furnace Atomic Absorption Analysis Scheme was followed correctly.

YES \_\_\_\_\_

NO ✓

*RSD results are not reported. Duplicate injections appear to  
have good agreement. MSA were performed as required.*

All holding times were met.

YES ✓

NO \_\_\_\_\_

Comments:

U.S. EPA Contract Laboratory Program  
Sample Management Office  
P.O. Box 818 - Alexandria, VA 22313  
703/557-2490 FTS: 8-557-2490

Ref. 7  
Date 8-14-86

COVER PAGE A  
INORGANIC ANALYSES DATA PACKAGE

Lab Name HITTMAN ERASCO ASSOCIATES INC.

Case No. SAS 2356 H

SDW No. 7/84

Q.C. Report No. 53

Sample Numbers

<u>EPA No.</u>	<u>Lab ID No.</u>	<u>EPA No.</u>	<u>Lab ID No.</u>
<u>AM-01-1</u>	<u><del>A</del></u>	<u>AM-01-3</u>	<u><del>A</del></u>
<u>AM-02-1</u>	<u>1</u>	<u>AM-02-3</u>	<u>1</u>
<u>AM-04-1</u>	<u>1</u>	<u>AM-03-3</u>	<u>1</u>
<u>AM-05-1</u>	<u>1</u>	<u>AM-04-3</u>	<u>1</u>
<u>AM-01-2</u>	<u>1</u>	<u>AM-05-3</u>	<u>1</u>
<u>AM-02-2</u>	<u>1</u>	<u>AM-01-4</u>	<u>1</u>
<u>AM-03-2</u>	<u>1</u>	<u>AM-02-4</u>	<u>1</u>
<u>AM-04-2</u>	<u>1</u>	<u>AM-03-4</u>	<u>1</u>
<u>AM-05-2</u>	<u>1</u>	<u>AM-04-4</u>	<u>1</u>

Comments:

A - Same as EPA number  
Zn was analyzed by ICP, Region 8 and  
SMD approved this method change 8-13-86.

ICP Interelement and background corrections applied? Yes X No   .

If yes, corrections applied before X or after    generation of raw data.

Footnotes:

NR - not required by contract at this time

Form I:

Value - If the result is a value greater than or equal to the instrument detection limit but less than the contract required detection limit, report the value in brackets (i.e., [10]). Indicate the analytical method used with P (for ICP/Flame AA) or F (for furnace).

U - Indicates element was analyzed for but not detected. Report with the detection limit value (e.g., 100).

E - Indicates a value estimated or not reported due to the presence of interference. Explanatory note included on cover page.

S - Indicates value determined by Method of Standard Addition.

R - Indicates spike sample recovery is not within control limits.

D - Indicates duplicate analysis is not within control limits.

+

- Indicates the correlation coefficient for method of standard addition is less than 0.995



U.S. EPA Contract Laboratory Program  
Sample Management Office  
P.O. Box 818 - Alexandria, VA 22313  
703/557-2490 FTS: 8-557-2490

Rep. 7  
Date 8-14-86

COVER PAGE B  
INORGANIC ANALYSES DATA PACKAGE

Lab Name HITTMAN ERASCO ASSOCIATES INC.

Case No. SAS 2356H

SOW No. 7/84

Q.C. Report No. 53

Sample Numbers

<u>EPA No.</u>	<u>Lab ID No.</u>	<u>EPA No.</u>	<u>Lab ID No.</u>
<u>AM-05-4</u>	<u>*</u>	<u>AM-06-4</u>	<u>*</u>
<u>AM-01-5</u>		<u>AM-06-5</u>	<u>L</u>
<u>AM-02-5</u>			
<u>AM-03-5</u>			
<u>AM-04-5</u>			
<u>AM-05-5</u>			
<u>AM-03-1</u>			
<u>AM-06-2</u>			
<u>AM-06-3</u>			

Comments:

\* - same as EPA number

ICP Interelement and background corrections applied? Yes X No     .

If yes, corrections applied before X or after      generation of raw data.

Footnotes:

NR - not required by contract at this time

Form I:

Value - If the result is a value greater than or equal to the instrument detection limit but less than the contract required detection limit, report the value in brackets (i.e., [10]). Indicate the analytical method used with P (for ICP/Flame AA) or F (for furnace).

⊖ - Indicates element was analyzed for but not detected. Report with the detection limit value (e.g., 100).

⊞ - Indicates a value estimated or not reported due to the presence of interference. Explanatory note included on cover page.

⊙ - Indicates value determined by Method of Standard Addition.

⊞ - Indicates spike sample recovery is not within control limits.

⊙ - Indicates duplicate analysis is not within control limits.

⊞ - Indicates the correlation coefficient for method of standard addition is less than 0.995

Form I

U.S. EPA Contract Laboratory Program  
 Sample Management Office  
 P.O. Box 818 - Alexandria, VA 22313  
 703/557-2490 FTS: 8-557-2490

EPA Sample No.  
AM-01-1

Date 8-14-86

INORGANIC ANALYSIS DATA SHEET

LAB NAME Hittman Ebasco Assoc., Inc.

CASE NO. SAS 2356 H

SOW NO. 7/84

LAB SAMPLE ID. NO. NA

QC REPORT NO. 53

Elements Identified and Measured

Concentration: Low X Medium \_\_\_\_\_  
 Matrix: Water \_\_\_\_\_ Soil \_\_\_\_\_ Sludge \_\_\_\_\_ Other X

mg/liter ug/L or mg/kg dry weight (Circle One)

1. <u>Aluminum</u>	13. <u>Magnesium</u>
2. <u>Antimony</u>	14. <u>Manganese</u>
3. <u>Arsenic</u> <u>1.0UF</u>	15. <u>Mercury</u>
4. <u>Barium</u>	16. <u>Nickel</u>
5. <u>Beryllium</u>	17. <u>Potassium</u>
6. <u>Cadmium</u> <u>.50UFR</u>	18. <u>Selenium</u>
7. <u>Calcium</u>	19. <u>Silver</u>
8. <u>Chromium</u>	20. <u>Sodium</u>
9. <u>Cobalt</u>	21. <u>Thallium</u>
10. <u>Copper</u>	22. <u>Tin</u>
11. <u>Iron</u>	23. <u>Vanadium</u>
12. <u>Lead</u> <u>3.4F</u>	24. <u>Zinc</u> <u>17P I</u>
Cyanide _____	Percent Solids (X) _____

Footnotes: For reporting results to EPA, standard result qualifiers are used as defined on Cover Page. Additional flags or footnotes explaining results are encouraged. Definition of such flags must be explicit and contained on Cover Page, however.

Comments: \_\_\_\_\_  
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Lab Manager Gail Solomon/Turk

Ref 2

Form 1

U.S. EPA Contract Laboratory Program  
Sample Management Office  
P.O. Box 818 - Alexandria, VA 22313  
703/557-2490 FTS: 8-557-2490

EPA Sample No.  
AM-01-2

Date 8-14-86

INORGANIC ANALYSIS DATA SHEET

LAB NAME Hittman Ebasco Assoc., Inc.

CASE NO. SAS 2356 H

SOW NO. 7/84

LAB SAMPLE ID. NO. NA

QC REPORT NO. 53

Elements Identified and Measured

Concentration: Low X Medium \_\_\_\_\_  
Matrix: Water \_\_\_\_\_ Soil \_\_\_\_\_ Sludge \_\_\_\_\_ Other X

ug/filter

ug/L or mg/kg dry weight (Circle One)

- |                                 |                              |
|---------------------------------|------------------------------|
| 1. <u>Aluminum</u>              | 13. <u>Magnesium</u>         |
| 2. <u>Antimony</u>              | 14. <u>Manganese</u>         |
| 3. <u>Arsenic</u> <u>1.0UF</u>  | 15. <u>Mercury</u>           |
| 4. <u>Barium</u>                | 16. <u>Nickel</u>            |
| 5. <u>Beryllium</u>             | 17. <u>Potassium</u>         |
| 6. <u>Cadmium</u> <u>0.54FR</u> | 18. <u>Selenium</u>          |
| 7. <u>Calcium</u>               | 19. <u>Silver</u>            |
| 8. <u>Chromium</u>              | 20. <u>Sodium</u>            |
| 9. <u>Cobalt</u>                | 21. <u>Thallium</u>          |
| 10. <u>Copper</u>               | 22. <u>Tin</u>               |
| 11. <u>Iron</u>                 | 23. <u>Vanadium</u>          |
| 12. <u>Lead</u> <u>8.9F</u>     | 24. <u>Zinc</u> <u>21P J</u> |
| Cyanide _____                   | Percent Solids (X) _____     |

Footnotes: For reporting results to EPA, standard result qualifiers are used as defined on Cover Page. Additional flags or footnotes explaining results are encouraged. Definition of such flags must be explicit and contained on Cover Page, however.

Comments: \_\_\_\_\_  
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Lab Manager Gail Solomon/pur

Ref. 2

Form 1

U.S. EPA Contract Laboratory Program  
Sample Management Office  
P.O. Box 818 - Alexandria, VA 22313  
703/557-2490 FTS: 8-557-2490

EPA Sample No.  
AM-01-3

Date 8-14-86

INORGANIC ANALYSIS DATA SHEET

LAB NAME Hittman Ebasco Assoc., Inc.

CASE NO. SAS 2356 H

SOW NO. 7/84

LAB SAMPLE ID. NO. NA

QC REPORT NO. 53

Elements Identified and Measured

Concentration: Low X Medium \_\_\_\_\_  
Matrix: Water \_\_\_\_\_ Soil \_\_\_\_\_ Sludge \_\_\_\_\_ Other X

ug/liter ug/l or mg/kg dry weight (Circle One)

1. <u>Aluminum</u>	13. <u>Magnesium</u>
2. <u>Antimony</u>	14. <u>Manganese</u>
3. <u>Arsenic</u> <u>1.0UF</u>	15. <u>Mercury</u>
4. <u>Barium</u>	16. <u>Nickel</u>
5. <u>Beryllium</u>	17. <u>Potassium</u>
6. <u>Cadmium</u> <u>0.5UFR</u>	18. <u>Selenium</u>
7. <u>Calcium</u>	19. <u>Silver</u>
8. <u>Chromium</u>	20. <u>Sodium</u>
9. <u>Cobalt</u>	21. <u>Thallium</u>
10. <u>Copper</u>	22. <u>Tin</u>
11. <u>Iron</u>	23. <u>Vanadium</u>
12. <u>Lead</u> <u>12FS</u>	24. <u>Zinc</u> <u>23PI</u>
Cyanide _____	Percent Solids (X) _____

Footnotes: For reporting results to EPA, standard result qualifiers are used as defined on Cover Page. Additional flags or footnotes explaining results are encouraged. Definition of such flags must be explicit and contained on Cover Page, however.

Comments: \_\_\_\_\_  
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Lab Manager Gail Solomon/pur

Ref. 2

Form 1

U.S. EPA Contract Laboratory Program  
Sample Management Office  
P.O. Box 818 - Alexandria, VA 22313  
703/557-2490 VTS: 8-557-2490

EPA Sample No.  
AM-01-4

Date 8-14-86

INORGANIC ANALYSIS DATA SHEET

LAB NAME Hittman Ebasco Assoc., Inc.

CASE NO. SAS 2356 H

SOW NO. 7/84

LAB SAMPLE ID. NO. NA

QC REPORT NO. 53

Elements Identified and Measured

Concentration: Low X Medium \_\_\_\_\_  
Matrix: Water \_\_\_\_\_ Soil \_\_\_\_\_ Sludge \_\_\_\_\_ Other X

ug/filtr ug/L or mg/kg dry weight (Circle One)

1. <u>Aluminum</u>	13. <u>Magnesium</u>
2. <u>Antimony</u>	14. <u>Manganese</u>
3. <u>Arsenic</u> <u>1.0UF</u>	15. <u>Mercury</u>
4. <u>Barium</u>	16. <u>Nickel</u>
5. <u>Beryllium</u>	17. <u>Potassium</u>
6. <u>Cadmium</u> <u>0.5UFR</u>	18. <u>Selenium</u>
7. <u>Calcium</u>	19. <u>Silver</u>
8. <u>Chromium</u>	20. <u>Sodium</u>
9. <u>Cobalt</u>	21. <u>Thallium</u>
10. <u>Copper</u>	22. <u>Tin</u>
11. <u>Iron</u>	23. <u>Vanadium</u>
12. <u>Lead</u> <u>29FS</u>	24. <u>Zinc</u> <u>43P 3</u>
Cyanide _____	Percent Solids (X) _____

Footnotes: For reporting results to EPA, standard result qualifiers are used as defined on Cover Page. Additional flags or footnotes explaining results are encouraged. Definition of such flags must be explicit and contained on Cover Page, however.

Comments: \_\_\_\_\_  
\_\_\_\_\_  
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Lab Manager Gail Solomon/burk

Ref 2

Form I

U.S. EPA Contract Laboratory Program  
Sample Management Office  
P.O. Box 818 - Alexandria, VA 22313  
703/557-2490 FTS: 8-557-2490

EPA Sample No.  
AM-01-5

Date 8-14-86

INORGANIC ANALYSIS DATA SHEET

LAB NAME Hittman Ybasco Assoc., Inc.

CASE NO. SAS 2356H

SDW NO. 7/84

LAB SAMPLE ID. NO. NA

QC REPORT NO. 53

Elements Identified and Measured

Concentration: Low X Medium \_\_\_\_\_  
Matrix: Water \_\_\_\_\_ Soil \_\_\_\_\_ Sludge \_\_\_\_\_ Other X

ug/filter ug/L or mg/kg dry weight (Circle One)

1. <u>Aluminum</u>	13. <u>Magnesium</u>
2. <u>Antimony</u>	14. <u>Manganese</u>
3. <u>Arsenic</u> <u>1.0UF</u>	15. <u>Mercury</u>
4. <u>Barium</u>	16. <u>Nickel</u>
5. <u>Beryllium</u>	17. <u>Potassium</u>
6. <u>Cadmium</u> <u>0.5UFR</u>	18. <u>Selenium</u>
7. <u>Calcium</u>	19. <u>Silver</u>
8. <u>Chromium</u>	20. <u>Sodium</u>
9. <u>Cobalt</u>	21. <u>Thallium</u>
10. <u>Copper</u>	22. <u>Tin</u>
11. <u>Iron</u>	23. <u>Vanadium</u>
12. <u>Lead</u> <u>8.0FS</u>	24. <u>Zinc</u> <u>22PJ</u>
Cyanide _____	Percent Solids (Z) _____

Footnotes: For reporting results to EPA, standard result qualifiers are used as defined on Cover Page. Additional flags or footnotes explaining results are encouraged. Definition of such flags must be explicit and contained on Cover Page, however.

Comments: \_\_\_\_\_  
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Lab Manager Gail Solomon

Ref 3

Form 1

U.S. EPA Contract Laboratory Program  
Sample Management Office  
P.O. Box 818 - Alexandria, VA 22313  
703/557-2490 FTS: 8-557-2490

EPA Sample No.  
AM-02-1

Date 8-14-86

INORGANIC ANALYSIS DATA SHEET

LAB NAME Hittman Ebasco Assoc., Inc.

CASE NO. SAS 2356 H

SOW NO. 7/84

LAB SAMPLE ID. NO. NA

QC REPORT NO. 53

Elements Identified and Measured

Concentration: Low X Medium \_\_\_\_\_  
Matrix: Water \_\_\_\_\_ Soil \_\_\_\_\_ Sludge \_\_\_\_\_ Other X

ug/filtr

ug/L or mg/kg dry weight (Circle One)

1. <u>Aluminum</u>	13. <u>Magnesium</u>
2. <u>Antimony</u>	14. <u>Manganese</u>
3. <u>Arsenic</u> <u>1.0UF</u>	15. <u>Mercury</u>
4. <u>Barium</u>	16. <u>Nickel</u>
5. <u>Beryllium</u>	17. <u>Potassium</u>
6. <u>Cadmium</u> <u>0.5UFS</u>	18. <u>Selenium</u>
7. <u>Calcium</u>	19. <u>Silver</u>
8. <u>Chromium</u>	20. <u>Sodium</u>
9. <u>Cobalt</u>	21. <u>Thallium</u>
10. <u>Copper</u>	22. <u>Tin</u>
11. <u>Iron</u>	23. <u>Vanadium</u>
12. <u>Lead</u> <u>8.3FS</u>	24. <u>Zinc</u> <u>15PJ</u>
Cyanide _____	Percent Solids (%) _____

Footnotes: For reporting results to EPA, standard result qualifiers are used as defined on Cover Page. Additional flags or footnotes explaining results are encouraged. Definition of such flags must be explicit and contained on Cover Page, however.

Comments: \_\_\_\_\_  
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Lab Manager Gail Solomon

Ref-2

Form 1

U.S. EPA Contract Laboratory Program  
Sample Management Office  
P.O. Box 818 - Alexandria, VA 22313  
703/557-2490 FTS: 8-557-2490

EPA Sample No.  
AM-02-2

Date 8-14-86

INORGANIC ANALYSIS DATA SHEET

LAB NAME Hittman Ebasco Assoc., Inc.

CASE NO. SAS 2356 H

SOW NO. 7/84

LAB SAMPLE ID. NO. NA

QC REPORT NO. 53

Elements Identified and Measured

Concentration: Low X Medium \_\_\_\_\_  
Matrix: Water \_\_\_\_\_ Soil \_\_\_\_\_ Sludge \_\_\_\_\_ Other X

ug/filter ug/L or ug/kg dry weight (Circle One)

1. <u>Aluminum</u>	13. <u>Magnesium</u>
2. <u>Antimony</u>	14. <u>Manganese</u>
3. <u>Arsenic</u> <u>6.8FS</u>	15. <u>Mercury</u>
4. <u>Barium</u>	16. <u>Nickel</u>
5. <u>Beryllium</u>	17. <u>Potassium</u>
6. <u>Cadmium</u> <u>0.5UFR</u>	18. <u>Selenium</u>
7. <u>Calcium</u>	19. <u>Silver</u>
8. <u>Chromium</u>	20. <u>Sodium</u>
9. <u>Cobalt</u>	21. <u>Thallium</u>
10. <u>Copper</u>	22. <u>Tin</u>
11. <u>Iron</u>	23. <u>Vanadium</u>
12. <u>Lead</u> <u>147FS</u>	24. <u>Zinc</u> <u>88PJ</u>
Cyanide _____	Percent Solids (X) _____

Footnotes: For reporting results to EPA, standard result qualifiers are used as defined on Cover Page. Additional flags or footnotes explaining results are encouraged. Definition of such flags must be explicit and contained on Cover Page, however.

Comments: \_\_\_\_\_  
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Lab Manager Gail Solomon/awr



Page 2

Form 1

U.S. EPA Contract Laboratory Program  
Sample Management Office  
P.O. Box 818 - Alexandria, VA 22313  
703/557-2490 FTS: 8-557-2490

EPA Sample No.  
AM-02-3

Date 8-14-86

INORGANIC ANALYSIS DATA SHEET

LAB NAME Hittman Ebasco Assoc., Inc.

CASE NO. SAS 2356H

SOW NO. 7/84

LAB SAMPLE ID. NO. NA

QC REPORT NO. 53

Elements Identified and Measured

Concentration: Low X Medium \_\_\_\_\_  
Matrix: Water \_\_\_\_\_ Soil \_\_\_\_\_ Sludge \_\_\_\_\_ Other X

ug/liter

ug/l or mg/kg dry weight (Circle One)

1. <u>Aluminum</u>	13. <u>Magnesium</u>
2. <u>Antimony</u>	14. <u>Manganese</u>
3. <u>Arsenic</u> <u>13FS</u>	15. <u>Mercury</u>
4. <u>Barium</u>	16. <u>Nickel</u>
5. <u>Beryllium</u>	17. <u>Potassium</u>
6. <u>Cadmium</u> <u>0.8FR</u>	18. <u>Selenium</u>
7. <u>Calcium</u>	19. <u>Silver</u>
8. <u>Chromium</u>	20. <u>Sodium</u>
9. <u>Cobalt</u>	21. <u>Thallium</u>
10. <u>Copper</u>	22. <u>Tin</u>
11. <u>Iron</u>	23. <u>Vanadium</u>
12. <u>Lead</u> <u>264FS</u>	24. <u>Zinc</u> <u>169PZ</u>
Cyanide _____	Percent Solids (X) _____

Footnotes: For reporting results to EPA, standard result qualifiers are used as defined on Cover Page. Additional flags or footnotes explaining results are encouraged. Definition of such flags must be explicit and contained on Cover Page, however.

Comments: \_\_\_\_\_  
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Lab Manager Gail Solomon/bur

Ref 2

Form 1

U.S. EPA Contract Laboratory Program  
Sample Management Office  
P.O. Box 818 - Alexandria, VA 22313  
703/557-2490 FTS: 8-557-2490

EPA Sample No.  
AM-02-4

Date 8-14-86

INORGANIC ANALYSIS DATA SHEET

LAB NAME Hittman Ebasco Assoc., Inc.

CASE NO. SAS 2356 H

SOW NO. 7/84

LAB SAMPLE ID. NO. NA

QC REPORT NO. 53

Elements Identified and Measured

Concentration: Low X Medium \_\_\_\_\_  
Matrix: Water \_\_\_\_\_ Soil \_\_\_\_\_ Sludge \_\_\_\_\_ Other X

ug/filter or mg/kg dry weight (Circle One)

- |                                  |                               |
|----------------------------------|-------------------------------|
| 1. <u>Aluminum</u>               | 13. <u>Magnesium</u>          |
| 2. <u>Antimony</u>               | 14. <u>Manganese</u>          |
| 3. <u>Arsenic</u> <u>6.6 FS</u>  | 15. <u>Mercury</u>            |
| 4. <u>Barium</u>                 | 16. <u>Nickel</u>             |
| 5. <u>Beryllium</u>              | 17. <u>Potassium</u>          |
| 6. <u>Cadmium</u> <u>0.54 FR</u> | 18. <u>Selenium</u>           |
| 7. <u>Calcium</u>                | 19. <u>Silver</u>             |
| 8. <u>Chromium</u>               | 20. <u>Sodium</u>             |
| 9. <u>Cobalt</u>                 | 21. <u>Thallium</u>           |
| 10. <u>Copper</u>                | 22. <u>Tin</u>                |
| 11. <u>Iron</u>                  | 23. <u>Vanadium</u>           |
| 12. <u>Lead</u> <u>131 F</u>     | 24. <u>Zinc</u> <u>98 P S</u> |
| Cyanide _____                    | Percent Solids (Z) _____      |

Footnotes: For reporting results to EPA, standard result qualifiers are used as defined on Cover Page. Additional flags or footnotes explaining results are encouraged. Definition of such flags must be explicit and contained on Cover Page, however.

Comments: \_\_\_\_\_  
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Lab Manager Gail Solomon/burk

Ref. 2

Form I

U.S. EPA Contract Laboratory Program  
Sample Management Office  
P.O. Box 818 - Alexandria, VA 22313  
703/557-2490 FTS: 8-557-2490

EPA Sample No.  
**AM-02-5**

Date **8-14-86**

INORGANIC ANALYSIS DATA SHEET

LAB NAME Hittman Ebasco Assoc., Inc.

CASE NO. SAS 2356H

SOW NO. 7/84

LAB SAMPLE ID. NO. NA

QC REPORT NO. 53

Elements Identified and Measured

Concentration: Low X Medium \_\_\_\_\_  
Matrix: Water \_\_\_\_\_ Soil \_\_\_\_\_ Sludge \_\_\_\_\_ Other X

ug/filter

ug/L or ug/kg dry weight (Circle One)

1. <u>Aluminum</u>	13. <u>Magnesium</u>
2. <u>Antimony</u>	14. <u>Manganese</u>
3. <u>Arsenic</u> <u>1.8 FS</u>	15. <u>Mercury</u>
4. <u>Barium</u>	16. <u>Nickel</u>
5. <u>Beryllium</u>	17. <u>Potassium</u>
6. <u>Cadmium</u> <u>0.5 UFR</u>	18. <u>Selenium</u>
7. <u>Calcium</u>	19. <u>Silver</u>
8. <u>Chromium</u>	20. <u>Sodium</u>
9. <u>Cobalt</u>	21. <u>Thallium</u>
10. <u>Copper</u>	22. <u>Tin</u>
11. <u>Iron</u>	23. <u>Vanadium</u>
12. <u>Lead</u> <u>48 FS</u>	24. <u>Zinc</u> <u>SIP 3</u>
Cyanide _____	Percent Solids (I) _____

Footnotes: For reporting results to EPA, standard result qualifiers are used as defined on Cover Page. Additional flags or footnotes explaining results are encouraged. Definition of such flags must be explicit and contained on Cover Page, however.

Comments: \_\_\_\_\_  
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Lab Manager Gail Solomon/duK

Ref. 2

Form 1

U.S. EPA Contract Laboratory Program  
Sample Management Office  
P.O. Box 818 - Alexandria, VA 22313  
703/557-2490 FTS: 8-557-2490

EPA Sample No.  
AM-03-1

Date 8-14-86

INORGANIC ANALYSIS DATA SHEET

LAB NAME Hittman Ebasco Assoc., Inc.

CASE NO. SAS 2356 H

SOW NO. 7/84

LAB SAMPLE ID. NO. NA

QC REPORT NO. 53

Elements Identified and Measured

Concentration: Low X Medium \_\_\_\_\_  
Matrix: Water \_\_\_\_\_ Soil \_\_\_\_\_ Sludge \_\_\_\_\_ Other X

ug/filter

ug/L or mg/kg dry weight (Circle One)

1. <u>Aluminum</u>	13. <u>Magnesium</u>
2. <u>Antimony</u>	14. <u>Manganese</u>
3. <u>Arsenic</u> <u>1.0UF</u>	15. <u>Mercury</u>
4. <u>Barium</u>	16. <u>Nickel</u>
5. <u>Beryllium</u>	17. <u>Potassium</u>
6. <u>Cadmium</u> <u>0.5UFR</u>	18. <u>Selenium</u>
7. <u>Calcium</u>	19. <u>Silver</u>
8. <u>Chromium</u>	20. <u>Sodium</u>
9. <u>Cobalt</u>	21. <u>Thallium</u>
10. <u>Copper</u>	22. <u>Tin</u>
11. <u>Iron</u>	23. <u>Vanadium</u>
12. <u>Lead</u> <u>0.5UFX<sup>KH</sup></u>	24. <u>Zinc</u> <u>0.4UPS</u>
Cyanide _____	Percent Solids (X) _____

Footnotes: For reporting results to EPA, standard result qualifiers are used as defined on Cover Page. Additional flags or footnotes explaining results are encouraged. Definition of such flags must be explicit and contained on Cover Page, however.

Comments: \_\_\_\_\_  
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Lab Manager Gail Solomon/DWK

Ref. 7

Form 1

U.S. EPA Contract Laboratory Program  
Sample Management Office  
P.O. Box 818 - Alexandria, VA 22313  
703/557-2490 FTS: 8-557-2490

EPA Sample No.  
AM-03-2

Date 8-14-86

INORGANIC ANALYSIS DATA SHEET

LAB NAME Hittman Ebasco Assoc., Inc.

CASE NO. SAS 2356H

SOW NO. 7/84

LAB SAMPLE ID. NO. NA

QC REPORT NO. 53

Elements Identified and Measured

Concentration: Low X Medium \_\_\_\_\_  
Matrix: Water \_\_\_\_\_ Soil \_\_\_\_\_ Sludge \_\_\_\_\_ Other X

ug/filter

ug/L or mg/kg dry weight (Circle One)

1. <u>Aluminum</u>	13. <u>Magnesium</u>
2. <u>Antimony</u>	14. <u>Manganese</u>
3. <u>Arsenic</u> <u>1.4FS</u>	15. <u>Mercury</u>
4. <u>Barium</u>	16. <u>Nickel</u>
5. <u>Beryllium</u>	17. <u>Potassium</u>
6. <u>Cadmium</u> <u>0.5UFR</u>	18. <u>Selenium</u>
7. <u>Calcium</u>	19. <u>Silver</u>
8. <u>Chromium</u>	20. <u>Sodium</u>
9. <u>Cobalt</u>	21. <u>Thallium</u>
10. <u>Copper</u>	22. <u>Tin</u>
11. <u>Iron</u>	23. <u>Vanadium</u>
12. <u>Lead</u> <u>26F</u>	24. <u>Zinc</u> <u>34P J</u>
Cyanide _____	Percent Solids (I) _____

Footnotes: For reporting results to EPA, standard result qualifiers are used as defined on Cover Page. Additional flags or footnotes explaining results are encouraged. Definition of such flags must be explicit and contained on Cover Page, however.

Comments: \_\_\_\_\_  
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Lab Manager Gail Solomon/DWK

Ref-2

Form I

U.S. EPA Contract Laboratory Program  
Sample Management Office  
P.O. Box 818 - Alexandria, VA 22313  
703/557-2490 FTS: 8-557-2490

EPA Sample No.  
**AM-03-3**

Date **8-14-86**

INORGANIC ANALYSIS DATA SHEET

LAB NAME Hittman Ebasco Assoc., Inc.

CASE NO. SAS 2356 H

SOW NO. 7/84

LAB SAMPLE ID. NO. NA

QC REPORT NO. 53

Elements Identified and Measured

Concentration: Low X Medium \_\_\_\_\_  
Matrix: Water \_\_\_\_\_ Soil \_\_\_\_\_ Sludge \_\_\_\_\_ Other X

ug/filter

ug/L or mg/kg dry weight (Circle One)

1. <u>Aluminum</u>	13. <u>Magnesium</u>
2. <u>Antimony</u>	14. <u>Manganese</u>
3. <u>Arsenic</u> <u>1.0UF</u>	15. <u>Mercury</u>
4. <u>Barium</u>	16. <u>Nickel</u>
5. <u>Beryllium</u>	17. <u>Potassium</u>
6. <u>Cadmium</u> <u>0.5UFR</u>	18. <u>Selenium</u>
7. <u>Calcium</u>	19. <u>Silver</u>
8. <u>Chromium</u>	20. <u>Sodium</u>
9. <u>Cobalt</u>	21. <u>Thallium</u>
10. <u>Copper</u>	22. <u>Tin</u>
11. <u>Iron</u>	23. <u>Vanadium</u>
12. <u>Lead</u> <u>25FS</u>	24. <u>Zinc</u> <u>28P 3</u>
Cyanide _____	Percent Solids (Z) _____

Footnotes: For reporting results to EPA, standard result qualifiers are used as defined on Cover Page. Additional flags or footnotes explaining results are encouraged. Definition of such flags must be explicit and contained on Cover Page, however.

Comments: \_\_\_\_\_  
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Lab Manager Gail Solomon/urc

Ref 2

Form I

U.S. EPA Contract Laboratory Program  
Sample Management Office  
P.O. Box 818 - Alexandria, VA 22313  
703/557-2490 FTS: 4-557-2490

EPA Sample No.  
AM-03-4

Date 8-14-86

INORGANIC ANALYSIS DATA SHEET

LAB NAME Hittman Ebasco Assoc., Inc.

CASE NO. SAS 2356 H

SOW NO. 7/84

LAB SAMPLE ID. NO. NA

QC REPORT NO. 53

Elements Identified and Measured

Concentration: Low X Medium \_\_\_\_\_  
Matrix: Water \_\_\_\_\_ Soil \_\_\_\_\_ Sludge \_\_\_\_\_ Other X

ug/filter or mg/kg dry weight (Circle One)

1. <u>Aluminum</u>	13. <u>Magnesium</u>
2. <u>Antimony</u>	14. <u>Manganese</u>
3. <u>Arsenic</u> <u>1.2 FS</u>	15. <u>Mercury</u>
4. <u>Barium</u>	16. <u>Nickel</u>
5. <u>Beryllium</u>	17. <u>Potassium</u>
6. <u>Cadmium</u> <u>0.5 UFR</u>	18. <u>Selenium</u>
7. <u>Calcium</u>	19. <u>Silver</u>
8. <u>Chromium</u>	20. <u>Sodium</u>
9. <u>Cobalt</u>	21. <u>Thallium</u>
10. <u>Copper</u>	22. <u>Tin</u>
11. <u>Iron</u>	23. <u>Vanadium</u>
12. <u>Lead</u> <u>40 FS</u>	24. <u>Zinc</u> <u>36P 5</u>
Cyanide _____	Percent Solids (X) _____

Footnotes: For reporting results to EPA, standard result qualifiers are used as defined on Cover Page. Additional flags or footnotes explaining results are encouraged. Definition of such flags must be explicit and contained on Cover Page, however.

Comments: \_\_\_\_\_  
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Lab Manager Gail Solomon/DWIC

Ref 2

Form 1

U.S. EPA Contract Laboratory Program  
Sample Management Office  
P.O. Box 818 - Alexandria, VA 22313  
703/557-2490 FTS: 8-557-2490

EPA Sample No.  
AM-03-5

Date 8-14-86

INORGANIC ANALYSIS DATA SHEET

LAB NAME Hittman Ebasco Assoc., Inc.

CASE NO. SAS 2356 H

SDW NO. 7/84

LAB SAMPLE ID. NO. NA

QC REPORT NO. 53

Elements Identified and Measured

Concentration: Low X Medium \_\_\_\_\_  
Matrix: Water \_\_\_\_\_ Soil \_\_\_\_\_ Sludge \_\_\_\_\_ Other X

ug/filter

ug/L or mg/kg dry weight (Circle One)

1. <u>Aluminum</u>	13. <u>Magnesium</u>
2. <u>Antimony</u>	14. <u>Manganese</u>
3. <u>Arsenic</u> <u>1.0UF</u>	15. <u>Mercury</u>
4. <u>Barium</u>	16. <u>Nickel</u>
5. <u>Beryllium</u>	17. <u>Potassium</u>
6. <u>Cadmium</u> <u>0.5UFR</u>	18. <u>Selenium</u>
7. <u>Calcium</u>	19. <u>Silver</u>
8. <u>Chromium</u>	20. <u>Sodium</u>
9. <u>Cobalt</u>	21. <u>Thallium</u>
10. <u>Copper</u>	22. <u>Tin</u>
11. <u>Iron</u>	23. <u>Vanadium</u>
12. <u>Lead</u> <u>30FS</u>	24. <u>Zinc</u> <u>23PJ</u>
Cyanide _____	Percent Solids (X) _____

Footnotes: For reporting results to EPA, standard result qualifiers are used as defined on Cover Page. Additional flags or footnotes explaining results are encouraged. Definition of such flags must be explicit and contained on Cover Page, however.

Comments: \_\_\_\_\_  
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Lab Manager Oril Solomon/maur



Ref 2

Form 1

U.S. EPA Contract Laboratory Program  
Sample Management Office  
P.O. Box 818 - Alexandria, VA 22313  
703/557-2490 FTS: 8-557-2490

EPA Sample No.  
AM-04-1

Date 8-14-86

INORGANIC ANALYSIS DATA SHEET

LAB NAME Hittman Ebasco Assoc., Inc.

CASE NO. SAS 2356H

SOW NO. 7/84

LAB SAMPLE ID. NO. NA

QC REPORT NO. 53

Elements Identified and Measured

Concentration: Low X Medium \_\_\_\_\_  
Matrix: Water \_\_\_\_\_ Soil \_\_\_\_\_ Sludge \_\_\_\_\_ Other X

ug/filter

ug/L or mg/kg dry weight (Circle One)

1. <u>Aluminum</u>	13. <u>Magnesium</u>
2. <u>Antimony</u>	14. <u>Manganese</u>
3. <u>Arsenic</u> <u>54F</u>	15. <u>Mercury</u>
4. <u>Barium</u>	16. <u>Nickel</u>
5. <u>Beryllium</u>	17. <u>Potassium</u>
6. <u>Cadmium</u> <u>4.8 FRS</u>	18. <u>Selenium</u>
7. <u>Calcium</u>	19. <u>Silver</u>
8. <u>Chromium</u>	20. <u>Sodium</u>
9. <u>Cobalt</u>	21. <u>Thallium</u>
10. <u>Copper</u>	22. <u>Tin</u>
11. <u>Iron</u>	23. <u>Vanadium</u>
12. <u>Lead</u> <u>959F</u>	24. <u>Zinc</u> <u>672P3</u>
Cyanide _____	Percent Solids (X) _____

Footnotes: For reporting results to EPA, standard result qualifiers are used as defined on Cover Page. Additional flags or footnotes explaining results are encouraged. Definition of such flags must be explicit and contained on Cover Page, however.

Comments: \_\_\_\_\_  
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Lab Manager Gail Solomon/Dur

Ref-2

Form I

U.S. EPA Contract Laboratory Program  
Sample Management Office  
P.O. Box 818 - Alexandria, VA 22313  
703/557-2490 FTS: 8-557-2490

EPA Sample No.  
AM-04-2

Date 8-14-86

INORGANIC ANALYSIS DATA SHEET

LAB NAME Hittman Ebasco Assoc., Inc.

CASE NO. SAS 2356 H

SOW NO. 7/84

LAB SAMPLE ID. NO. NA

QC REPORT NO. 53

Elements Identified and Measured

Concentration: Low X Medium \_\_\_\_\_  
Matrix: Water \_\_\_\_\_ Soil \_\_\_\_\_ Sludge \_\_\_\_\_ Other X

Mo/Filter ug/L or mg/kg dry weight (Circle One)

1. <u>Aluminum</u>	13. <u>Magnesium</u>
2. <u>Antimony</u>	14. <u>Manganese</u>
3. <u>Arsenic</u> <u>1.5 FS</u>	15. <u>Mercury</u>
4. <u>Barium</u>	16. <u>Nickel</u>
5. <u>Beryllium</u>	17. <u>Potassium</u>
6. <u>Cadmium</u> <u>.50 UFR</u>	18. <u>Selenium</u>
7. <u>Calcium</u>	19. <u>Silver</u>
8. <u>Chromium</u>	20. <u>Sodium</u>
9. <u>Cobalt</u>	21. <u>Thallium</u>
10. <u>Copper</u>	22. <u>Tin</u>
11. <u>Iron</u>	23. <u>Vanadium</u>
12. <u>Lead</u> <u>30 F</u>	24. <u>Zinc</u> <u>39 P S</u>
Cyanide _____	Percent Solids (X) _____

Footnotes: For reporting results to EPA, standard result qualifiers are used as defined on Cover Page. Additional flags or footnotes explaining results are encouraged. Definition of such flags must be explicit and contained on Cover Page, however.

Comments: \_\_\_\_\_  
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Lab Manager Gail Solomon  
DMK

Ref-2

Form 1

U.S. EPA Contract Laboratory Program  
Sample Management Office  
P.O. Box 818 - Alexandria, VA 22313  
703/557-2490 FTS: 8-557-2490

EPA Sample No.  
AM-04-3

Date 8-14-86

INORGANIC ANALYSIS DATA SHEET

LAB NAME Hittman Ebasco Assoc., Inc.

CASE NO. SAS 2356 H

SOW NO. 7/84

LAB SAMPLE ID. NO. NA

QC REPORT NO. 53

Elements Identified and Measured

Concentration: Low X Medium \_\_\_\_\_  
Matrix: Water \_\_\_\_\_ Soil \_\_\_\_\_ Sludge \_\_\_\_\_ Other X

mg/liter

ug/L or mg/kg dry weight (Circle One)

1. <u>Aluminum</u>	13. <u>Magnesium</u>
2. <u>Antimony</u>	14. <u>Manganese</u>
3. <u>Arsenic</u> <u>1.5 FS</u>	15. <u>Mercury</u>
4. <u>Barium</u>	16. <u>Nickel</u>
5. <u>Beryllium</u>	17. <u>Potassium</u>
6. <u>Cadmium</u> <u>.50 UFR</u>	18. <u>Selenium</u>
7. <u>Calcium</u>	19. <u>Silver</u>
8. <u>Chromium</u>	20. <u>Sodium</u>
9. <u>Cobalt</u>	21. <u>Thallium</u>
10. <u>Copper</u>	22. <u>Tin</u>
11. <u>Iron</u>	23. <u>Vanadium</u>
12. <u>Lead</u> <u>36 FS</u>	24. <u>Zinc</u> <u>43 PJ</u>
Cyanide _____	Percent Solids (2) _____

Footnotes: For reporting results to EPA, standard result qualifiers are used as defined on Cover Page. Additional flags or footnotes explaining results are encouraged. Definition of such flags must be explicit and contained on Cover Page, however.

Comments: \_\_\_\_\_  
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Lab Manager Gail Solomon  
/mk

Ref. 2

Form I

U.S. EPA Contract Laboratory Program  
Sample Management Office  
P.O. Box 818 - Alexandria, VA 22313  
703/557-2490 FTS: 8-557-2490

EPA Sample No.  
AM-04-4

Date 8-14-86

INORGANIC ANALYSIS DATA SHEET

LAB NAME Hittman Ebasco Assoc., Inc.

CASE NO. SAS 2356 H

SOW NO. 7/84

LAB SAMPLE ID. NO. NA

QC REPORT NO. 53

Elements Identified and Measured

Concentration: Low X Medium \_\_\_\_\_  
Matrix: Water \_\_\_\_\_ Soil \_\_\_\_\_ Sludge \_\_\_\_\_ Other X

mg/liter ug/l or mg/kg dry weight (Circle One)

1. <u>Aluminum</u>	13. <u>Magnesium</u>
2. <u>Antimony</u>	14. <u>Manganese</u>
3. <u>Arsenic</u> <u>1.0 UF</u>	15. <u>Mercury</u>
4. <u>Barium</u>	16. <u>Nickel</u>
5. <u>Beryllium</u>	17. <u>Potassium</u>
6. <u>Cadmium</u> <u>.50 UFR</u>	18. <u>Selenium</u>
7. <u>Calcium</u>	19. <u>Silver</u>
8. <u>Chromium</u>	20. <u>Sodium</u>
9. <u>Cobalt</u>	21. <u>Thallium</u>
10. <u>Copper</u>	22. <u>Tin</u>
11. <u>Iron</u>	23. <u>Vanadium</u>
12. <u>Lead</u> <u>64 FS</u>	24. <u>Zinc</u> <u>35 PJ</u>
Cyanide _____	Percent Solids (X) _____

Footnotes: For reporting results to EPA, standard result qualifiers are used as defined on Cover Page. Additional flags or footnotes explaining results are encouraged. Definition of such flags must be explicit and contained on Cover Page, however.

Comments: \_\_\_\_\_  
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Lab Manager Gail Solomon  
bmk

Ref 2

Form I

U.S. EPA Contract Laboratory Program  
Sample Management Office  
P.O. Box 818 - Alexandria, VA 22313  
703/557-2490 FTS: 8-557-2490

EPA Sample No.  
AM-04-5

Date 8-14-86

INORGANIC ANALYSIS DATA SHEET

LAB NAME Hittman Ebasco Assoc., Inc.

CASE NO. SAS 2356 H

SOW NO. 7/84

LAB SAMPLE ID. NO. NA

QC REPORT NO. 53

Elements Identified and Measured

Concentration: Low X Medium \_\_\_\_\_  
Matrix: Water \_\_\_\_\_ Soil \_\_\_\_\_ Sludge \_\_\_\_\_ Other X

Na/Filter

ug/L or mg/kg dry weight (Circle One)

1. <u>Aluminum</u>	13. <u>Magnesium</u>
2. <u>Antimony</u>	14. <u>Manganese</u>
3. <u>Arsenic</u> <u>1.5 FS</u>	15. <u>Mercury</u>
4. <u>Barium</u>	16. <u>Nickel</u>
5. <u>Beryllium</u>	17. <u>Potassium</u>
6. <u>Cadmium</u> <u>.50 UFR</u>	18. <u>Selenium</u>
7. <u>Calcium</u>	19. <u>Silver</u>
8. <u>Chromium</u>	20. <u>Sodium</u>
9. <u>Cobalt</u>	21. <u>Thallium</u>
10. <u>Copper</u>	22. <u>Tin</u>
11. <u>Iron</u>	23. <u>Vanadium</u>
12. <u>Lead</u> <u>27 F</u>	24. <u>Zinc</u> <u>27 PS</u>
Cyanide _____	Percent Solids (X) _____

Footnotes: For reporting results to EPA, standard result qualifiers are used as defined on Cover Page. Additional flags or footnotes explaining results are encouraged. Definition of such flags must be explicit and contained on Cover Page, however.

Comments: \_\_\_\_\_  
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Lab Manager Gail Soloman  
/DWK

Ref-2

Form I

U.S. EPA Contract Laboratory Program  
Sample Management Office  
P.O. Box 818 - Alexandria, VA 22313  
703/537-2490 FTS: 8-537-2490

EPA Sample No.  
AM-05-1

Date 8-14-86

INORGANIC ANALYSIS DATA SHEET

LAB NAME Hittman Ebasco Assoc., Inc.

CASE NO. SAS 2356 H

SOW NO. 7/84

LAB SAMPLE ID. NO. NA

QC REPORT NO. 53

Elements Identified and Measured

Concentration: Low X Medium \_\_\_\_\_  
Matrix: Water \_\_\_\_\_ Soil \_\_\_\_\_ Sludge \_\_\_\_\_ Other X

ug/L or mg/kg

ug/L or mg/kg dry weight (Circle One)

- |  |                               |
|--|-------------------------------|
| 1. <u>Aluminum</u>                     | 13. <u>Magnesium</u>          |
| 2. <u>Antimony</u>                     | 14. <u>Manganese</u>          |
| 3. <u>Arsenic</u> <u>175 FS</u>        | 15. <u>Mercury</u>            |
| 4. <u>Barium</u>                       | 16. <u>Nickel</u>             |
| 5. <u>Beryllium</u>                    | 17. <u>Potassium</u>          |
| 6. <u>Cadmium</u> <u>52 NO. 50 FRS</u> | 18. <u>Selenium</u>           |
| 7. <u>Calcium</u>                      | 19. <u>Silver</u>             |
| 8. <u>Chromium</u>                     | 20. <u>Sodium</u>             |
| 9. <u>Cobalt</u>                       | 21. <u>Thallium</u>           |
| 10. <u>Copper</u>                      | 22. <u>Tin</u>                |
| 11. <u>Iron</u>                        | 23. <u>Vanadium</u>           |
| 12. <u>Lead</u> <u>348 275 F</u>       | 24. <u>Zinc</u> <u>527 PJ</u> |
| Cyanide _____                          | Percent Solids (X) _____      |

Footnotes: For reporting results to EPA, standard result qualifiers are used as defined on Cover Page. Additional flags or footnotes explaining results are encouraged. Definition of such flags must be explicit and contained on Cover Page, however.

Comments: \_\_\_\_\_  
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Lab Manager Gail Solomon  
/DWK

Ref-2

Form 1

U.S. EPA Contract Laboratory Program  
Sample Management Office  
P.O. Box 818 - Alexandria, VA 22313  
703/557-2490 FTS: 8-557-2490

EPA Sample No.  
AM-05-2

Date 8-14-86

INORGANIC ANALYSIS DATA SHEET

LAB NAME Hittman Ebasco Assoc., Inc.

CASE NO. SAS 2356 H

SOW NO. 7/84

LAB SAMPLE ID. NO. NA

QC REPORT NO. 53

Elements Identified and Measured

Concentration: Low X Medium \_\_\_\_\_  
Matrix: Water \_\_\_\_\_ Soil \_\_\_\_\_ Sludge \_\_\_\_\_ Other X

no filter

ug./L or mg/kg dry weight (Circle One)

1. <u>Aluminum</u>	13. <u>Magnesium</u>
2. <u>Antimony</u>	14. <u>Manganese</u>
3. <u>Arsenic</u> <u>1.0 UF</u>	15. <u>Mercury</u>
4. <u>Barium</u>	16. <u>Nickel</u>
5. <u>Beryllium</u>	17. <u>Potassium</u>
6. <u>Cadmium</u> <u>.50 UFR</u>	18. <u>Selenium</u>
7. <u>Calcium</u>	19. <u>Silver</u>
8. <u>Chromium</u>	20. <u>Sodium</u>
9. <u>Cobalt</u>	21. <u>Thallium</u>
10. <u>Copper</u>	22. <u>Tin</u>
11. <u>Iron</u>	23. <u>Vanadium</u>
12. <u>Lead</u> <u>14 FS</u>	24. <u>Zinc</u> <u>17 P J</u>
Cyanide _____	Percent Solids (Z) _____

Footnotes: For reporting results to EPA, standard result qualifiers are used as defined on Cover Page. Additional flags or footnotes explaining results are encouraged. Definition of such flags must be explicit and contained on Cover Page, however.

Comments: \_\_\_\_\_  
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Lab Manager Gail Solomon/pmc

Ref. 2

Form 1

U.S. EPA Contract Laboratory Program  
Sample Management Office  
P.O. Box 818 - Alexandria, VA 22313  
703/557-2490 FTS: 8-557-2490

EPA Sample No.  
**AM-05-3**

Date **8-14-86**

INORGANIC ANALYSIS DATA SHEET

LAB NAME Hittman Ebasco Assoc., Inc.

CASE NO. SAS 2356 H

SOW NO. 7/84

LAB SAMPLE ID. NO. NA

QC REPORT NO. 53

Elements Identified and Measured

Concentration: Low X Medium \_\_\_\_\_  
Matrix: Water \_\_\_\_\_ Soil \_\_\_\_\_ Sludge \_\_\_\_\_ Other X

mg/liter

ng/l or ng/kg dry weight (Circle One)

- |                                   |                               |
|-----------------------------------|-------------------------------|
| 1. <u>Aluminum</u>                | 13. <u>Magnesium</u>          |
| 2. <u>Antimony</u>                | 14. <u>Manganese</u>          |
| 3. <u>Arsenic</u> <u>1.4 F</u>    | 15. <u>Mercury</u>            |
| 4. <u>Barium</u>                  | 16. <u>Nickel</u>             |
| 5. <u>Beryllium</u>               | 17. <u>Potassium</u>          |
| 6. <u>Cadmium</u> <u>1.50 UER</u> | 18. <u>Selenium</u>           |
| 7. <u>Calcium</u>                 | 19. <u>Silver</u>             |
| 8. <u>Chromium</u>                | 20. <u>Sodium</u>             |
| 9. <u>Cobalt</u>                  | 21. <u>Thallium</u>           |
| 10. <u>Copper</u>                 | 22. <u>Tin</u>                |
| 11. <u>Iron</u>                   | 23. <u>Vanadium</u>           |
| 12. <u>Lead</u> <u>30 F</u>       | 24. <u>Zinc</u> <u>55 P 3</u> |
| Cyanide _____                     | Percent Solids (X) _____      |

Footnotes: For reporting results to EPA, standard result qualifiers are used as defined on Cover Page. Additional flags or footnotes explaining results are encouraged. Definition of such flags must be explicit and contained on Cover Page, however.

Comments: \_\_\_\_\_  
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Lab Manager Gail Solomon DMK



Ref 2

Form 1

U.S. EPA Contract Laboratory Program  
Sample Management Office  
P.O. Box 818 - Alexandria, VA 22313  
703/557-2490 FTS: 8-557-2490

EPA Sample No.  
AM-05-4

Date 8-14-86

INORGANIC ANALYSIS DATA SHEET

LAB NAME Hittman Ebasco Assoc., Inc.

CASE NO. SAS 2356 H

SDV NO. 7/84

LAB SAMPLE ID. NO. NA

QC REPORT NO. 53

Elements Identified and Measured

Concentration: Low X Medium \_\_\_\_\_  
Matrix: Water \_\_\_\_\_ Soil \_\_\_\_\_ Sludge \_\_\_\_\_ Other X

ug/filter

ug/L or ug/kg dry weight (Circle One)

- |                                  |                              |
|----------------------------------|------------------------------|
| 1. <u>Aluminum</u>               | 13. <u>Magnesium</u>         |
| 2. <u>Antimony</u>               | 14. <u>Manganese</u>         |
| 3. <u>Arsenic</u> <u>1.1 F</u>   | 15. <u>Mercury</u>           |
| 4. <u>Barium</u>                 | 16. <u>Nickel</u>            |
| 5. <u>Beryllium</u>              | 17. <u>Potassium</u>         |
| 6. <u>Cadmium</u> <u>.50 UFR</u> | 18. <u>Selenium</u>          |
| 7. <u>Calcium</u>                | 19. <u>Silver</u>            |
| 8. <u>Chromium</u>               | 20. <u>Sodium</u>            |
| 9. <u>Cobalt</u>                 | 21. <u>Thallium</u>          |
| 10. <u>Copper</u>                | 22. <u>Tin</u>               |
| 11. <u>Iron</u>                  | 23. <u>Vanadium</u>          |
| 12. <u>Lead</u> <u>35 FS</u>     | 24. <u>Zinc</u> <u>43 PJ</u> |
| Cyanide _____                    | Percent Solids (X) _____     |

Footnotes: For reporting results to EPA, standard result qualifiers are used as defined on Cover Page. Additional flags or footnotes explaining results are encouraged. Definition of such flags must be explicit and contained on Cover Page, however.

Comments: \_\_\_\_\_  
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\_\_\_\_\_

Lab Manager Gail Solomon

Ref-2

Form I

U.S. EPA Contract Laboratory Program  
Sample Management Office  
P.O. Box 818 - Alexandria, VA 22313  
703/557-2490 YTS: 8-557-2490

EPA Sample No.  
AM-05-5

Date 8-14-86

INORGANIC ANALYSIS DATA SHEET

LAB NAME Hittman Ebasco Assoc., Inc.

CASE NO. SAS 2356 H

SOW NO. 7/84

LAB SAMPLE ID. NO. NA

QC REPORT NO. 53

Elements Identified and Measured

Concentration: Low X Medium \_\_\_\_\_  
Matrix: Water \_\_\_\_\_ Soil \_\_\_\_\_ Sludge \_\_\_\_\_ Other X

ug/g filter

ug/L or mg/kg dry weight (Circle One)

- |                                  |                              |
|----------------------------------|------------------------------|
| 1. <u>Aluminum</u>               | 13. <u>Magnesium</u>         |
| 2. <u>Antimony</u>               | 14. <u>Manganese</u>         |
| 3. <u>Arsenic</u> <u>1.0 UF</u>  | 15. <u>Mercury</u>           |
| 4. <u>Barium</u>                 | 16. <u>Nickel</u>            |
| 5. <u>Beryllium</u>              | 17. <u>Potassium</u>         |
| 6. <u>Cadmium</u> <u>.50 UFR</u> | 18. <u>Selenium</u>          |
| 7. <u>Calcium</u>                | 19. <u>Silver</u>            |
| 8. <u>Chromium</u>               | 20. <u>Sodium</u>            |
| 9. <u>Cobalt</u>                 | 21. <u>Thallium</u>          |
| 10. <u>Copper</u>                | 22. <u>Tin</u>               |
| 11. <u>Iron</u>                  | 23. <u>Vanadium</u>          |
| 12. <u>Lead</u> <u>16 F</u>      | 24. <u>Zinc</u> <u>27 PJ</u> |
| Cyanide _____                    | Percent Solids (X) _____     |

Footnotes: For reporting results to EPA, standard result qualifiers are used as defined on Cover Page. Additional flags or footnotes explaining results are encouraged. Definition of such flags must be explicit and contained on Cover Page, however.

Comments: \_\_\_\_\_  
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Lab Manager Gail Solomon/DWR

Ref 2

Form 1

U.S. EPA Contract Laboratory Program  
Sample Management Office  
P.O. Box 818 - Alexandria, VA 22313  
703/557-2490 FTS: 8-557-2490

EPA Sample No.  
AM-06-2

Date 8-14-86

INORGANIC ANALYSIS DATA SHEET

LAB NAME Hittman Ebasco Assoc., Inc.

CASE NO. SAS 2356 H

SOW NO. 7/84

LAB SAMPLE ID. NO. NA

QC REPORT NO. 53

Elements Identified and Measured

Concentration: Low X Medium \_\_\_\_\_  
Matrix: Water \_\_\_\_\_ Soil \_\_\_\_\_ Sludge \_\_\_\_\_ Other X

ug/liter

ug/L or mg/kg dry weight (Circle One)

- |                                       |                                      |
|---------------------------------------|--------------------------------------|
| 1. <u>Aluminum</u>                    | 13. <u>Magnesium</u>                 |
| 2. <u>Antimony</u>                    | 14. <u>Manganese</u>                 |
| 3. <u>Arsenic</u> <u>1.0 UF</u>       | 15. <u>Mercury</u>                   |
| 4. <u>Barium</u>                      | 16. <u>Nickel</u>                    |
| 5. <u>Beryllium</u>                   | 17. <u>Potassium</u>                 |
| 6. <u>Cadmium</u> <u>1.50 UFR</u>     | 18. <u>Selenium</u>                  |
| 7. <u>Calcium</u>                     | 19. <u>Silver</u>                    |
| 8. <u>Chromium</u>                    | 20. <u>Sodium</u>                    |
| 9. <u>Cobalt</u>                      | 21. <u>Thallium</u>                  |
| 10. <u>Copper</u>                     | 22. <u>Tin</u>                       |
| 11. <u>Iron</u>                       | 23. <u>Vanadium</u>                  |
| 12. <u>Lead</u> <u>1.50 UF 16 FPK</u> | 24. <u>Zinc</u> <u>0.4 UF 27 FPK</u> |
| Cyanide _____                         | Percent Solids (X) _____             |

Footnotes: For reporting results to EPA, standard result qualifiers are used as defined on Cover Page. Additional flags or footnotes explaining results are encouraged. Definition of such flags must be explicit and contained on Cover Page, however.

Comments: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Lab Manager Greil Schomay/Burk

Ref 2

Form 1

U.S. EPA Contract Laboratory Program  
Sample Management Office  
P.O. Box 818 - Alexandria, VA 22313  
703/557-2490 FTS: 8-557-2490

EPA Sample No.  
AM-06-3

Date 8-14-86

INORGANIC ANALYSIS DATA SHEET

LAB NAME Hittman Ebasco Assoc., Inc.

CASE NO. SAS 2356H

SOW NO. 7/84

LAB SAMPLE ID. NO. NA

QC REPORT NO. 53

Elements Identified and Measured

Concentration: Low X Medium \_\_\_\_\_  
Matrix: Water \_\_\_\_\_ Soil \_\_\_\_\_ Sludge \_\_\_\_\_ Other X

ug/liter

ug/l or mg/kg dry weight (Circle One)

1. <u>Aluminum</u>	13. <u>Magnesium</u>
2. <u>Antimony</u>	14. <u>Manganese</u>
3. <u>Arsenic</u> <u>1.0 UF</u>	15. <u>Mercury</u>
4. <u>Barium</u>	16. <u>Nickel</u>
5. <u>Beryllium</u>	17. <u>Potassium</u>
6. <u>Cadmium</u> <u>.50 UFR</u>	18. <u>Selenium</u>
7. <u>Calcium</u>	19. <u>Silver</u>
8. <u>Chromium</u>	20. <u>Sodium</u>
9. <u>Cobalt</u>	21. <u>Thallium</u>
10. <u>Copper</u>	22. <u>Tin</u>
11. <u>Iron</u>	23. <u>Vanadium</u>
12. <u>Lead</u> <u>.50 UF</u>	24. <u>Zinc</u> <u>0.4 UPT</u>
Cyanide _____	Percent Solids (X) _____

Footnotes: For reporting results to EPA, standard result qualifiers are used as defined on Cover Page. Additional flags or footnotes explaining results are encouraged. Definition of such flags must be explicit and contained on Cover Page, however.

Comments: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Lab Manager Gail Solomon/pmk

Ref. 2

Form I

U.S. EPA Contract Laboratory Program  
Sample Management Office  
P.O. Box 818 - Alexandria, VA 22313  
703/557-2490 FTS: 8-557-2490

EPA Sample No.  
AM-06-4

Date 8-14-86

INORGANIC ANALYSIS DATA SHEET

LAB NAME Hittman Ebasco Assoc., Inc.

CASE NO. SAS 2356 H

SOL NO. 7/84

LAB SAMPLE ID. NO. NA

QC REPORT NO. 53

Elements Identified and Measured

Concentration: Low X Medium \_\_\_\_\_  
Matrix: Water \_\_\_\_\_ Soil \_\_\_\_\_ Sludge \_\_\_\_\_ Other X

no filter

ug/L or mg/kg dry weight (Circle One)

1. <u>Aluminum</u>	13. <u>Magnesium</u>
2. <u>Antimony</u>	14. <u>Manganese</u>
3. <u>Arsenic</u> <u>1.0 UF</u>	15. <u>Mercury</u>
4. <u>Barium</u>	16. <u>Nickel</u>
5. <u>Beryllium</u>	17. <u>Potassium</u>
6. <u>Cadmium</u> <u>0.5 UFR</u>	18. <u>Selenium</u>
7. <u>Calcium</u>	19. <u>Silver</u>
8. <u>Chromium</u>	20. <u>Sodium</u>
9. <u>Cobalt</u>	21. <u>Thallium</u>
10. <u>Copper</u>	22. <u>Tin</u>
11. <u>Iron</u>	23. <u>Vanadium</u>
12. <u>Lead</u> <u>0.5 UF</u>	24. <u>Zinc</u> <u>0.4 UFS</u>
Cyanide _____	Percent Solids (X) _____

Footnotes: For reporting results to EPA, standard result qualifiers are used as defined on Cover Page. Additional flags or footnotes explaining results are encouraged. Definition of such flags must be explicit and contained on Cover Page, however.

Comments: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Lab Manager Carol Solomon

Ref 2

Form I

U.S. EPA Contract Laboratory Program  
Sample Management Office  
P.O. Box 818 - Alexandria, VA 22313  
703/557-2490 FTS: 8-557-2490

EPA Sample No.  
AM-06-5

Date 8-14-86

INORGANIC ANALYSIS DATA SHEET

LAB NAME Hittman Ebasco Assoc., Inc.

CASE NO. SAS 2356 H

SOW NO. 7/84

LAB SAMPLE ID. NO. NA

QC REPORT NO. 53

Elements Identified and Measured

Concentration: Low X Medium \_\_\_\_\_  
Matrix: Water \_\_\_\_\_ Soil \_\_\_\_\_ Sludge \_\_\_\_\_ Other X

no filter

ug/L or mg/kg dry weight (Circle One)

1. <u>Aluminum</u>	13. <u>Magnesium</u>
2. <u>Antimony</u>	14. <u>Manganese</u>
3. <u>Arsenic</u> <u>1.0 UF</u>	15. <u>Mercury</u>
4. <u>Barium</u>	16. <u>Nickel</u>
5. <u>Beryllium</u>	17. <u>Potassium</u>
6. <u>Cadmium</u> <u>0.5 UFR</u>	18. <u>Selenium</u>
7. <u>Calcium</u>	19. <u>Silver</u>
8. <u>Chromium</u>	20. <u>Sodium</u>
9. <u>Cobalt</u>	21. <u>Thallium</u>
10. <u>Copper</u>	22. <u>Tin</u>
11. <u>Iron</u>	23. <u>Vanadium</u>
12. <u>Lead</u> <u>0.5 UF</u>	24. <u>Zinc</u> <u>0.4 UFI</u>
Cyanide _____	Percent Solids (X) _____

Footnotes: For reporting results to EPA, standard result qualifiers are used as defined on Cover Page. Additional flags or footnotes explaining results are encouraged. Definition of such flags must be explicit and contained on Cover Page, however.

Comments: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Lab Manager Carol Solomon/urk

*Ref. 3*

REGION VIII SUMMARY OF DATA QUALITY ASSURANCE REVIEW

Case No. 6218 Project No. 8608-05  
Site Richardson Flats  
Contractor Laboratory Hittman Ebasco  
Data Reviewer L Roberts Date of Review 9/5/86  
Sample Matrix Soil - Inorganic

Sample No. MH0861 \_\_\_\_\_  
MH0862 \_\_\_\_\_  
MH0863 \_\_\_\_\_  
MH0864 \_\_\_\_\_  
MH0865 \_\_\_\_\_

- ( ) Data are acceptable for use  
( ☒ ) Data are acceptable for use with qualification noted <sup>*below*</sup> ~~above~~  
( ) Data are preliminary - pending action or verification  
( ) Data are unacceptable

Action required by DPO?

No ☒ Yes \_\_\_\_\_ Following items require action \_\_\_\_\_

Action required by Project Officer (PO)?

No ☒ Yes \_\_\_\_\_

**Following are our findings:**

The As, Hg, Sb, Se and Tl results are flagged with an R due to spike recoveries beyond  $\pm 25\%$  control limit. The As, Hg and Tl matrix spike recoveries are very high, this may indicate a positive bias. The duplicate RPD results for Cr, Al, Ca, Mg, Hg and Zn were between 39 and 61%. These results should be considered quantitative estimates. The serial dilution results for Be, Co, K, Sb and V indicate that an interference may be present for these elements.

The laboratory submitted corrected Form I's because they had originally miscalculated the matrix spike recoveries. The new Form I's are difficult to read and confusing.



Ref. 2

FORM A

Inorganic Data Completeness Checklist

- ☒ Inorganic analysis data sheets
- ☒ Initial calibration and calibration verification results
- ☒ Continuing calibration verification
- ☒ Instrument Detection limits
- ☒ Duplicate results
- ☒ Spike results
- ☒ ICP interference check sample
- ☒ Blank results
- ☒ Serial Dilution Results
- ☒ Raw data for calibration standards
- ☒ Raw data for blanks
- ☒ Raw data for samples
- ☒ Raw data for duplicates
- ☒ Raw data for spikes
- ☒ Raw data for furnace AA
- ☒ Percent solids calculation - soils only
- ☒ Traffic Reports

Ref 2

FORM B

Initial calibration data were reviewed. Initial calibration data were included in the package and met all contract requirements.

YES ✓

NO \_\_\_\_\_

Comments:

Continuing calibration data were reviewed and these data met all contract requirements.

YES ✓

NO \_\_\_\_\_

Comments:

A blank was run with every twenty samples or less per case.

YES ✓

NO \_\_\_\_\_

Comments:

How many elements were detected above the required detection limit? 0

How many elements were detected at greater than one half the amount detected in any sample? 0

Comments:

Ref 3

FORM C

The interference check sample was run twice per eight hour shift. No massive interferences were present.

YES \_\_\_\_\_

NO ☒

Comments:

Final ICS for antimony was not analyzed

All matrix spike requirements were met.

YES \_\_\_\_\_

NO ☒

Comments:

As 280% Sb 67%  
Hg 150%  
Se 55%  
Cl 218%

As, Hg & Cl results may be biased high.  
N flag applied to results.

Laboratory miscalculated spike recoveries and submitted new forms.  
A duplicate sample was run with every twenty or fewer samples of a similar matrix, or one per case, whichever is more frequent.

YES ☒

NO \_\_\_\_\_

Cr 61% RPD  
Al 39%  
Ca 56%  
Mg 58%  
Hg 57%  
Zn 42%

Limit - 35 RPD  
+ flag applied

The RPD's were tabulated.

YES ☒

NO \_\_\_\_\_

Comments:

All inorganic detection limits met the contract requirements.

YES ☒

NO \_\_\_\_\_

Comments:

*Ref. R*

FORM D

All Laboratory Control Samples met specified contract limits.

YES ☒

NO ☐

Comments:

Serial Dilution requirements were met.

YES ☐

NO ☒

*Results > 10%*  
Sb 34% V 68%  
Co 14% Be 12%  
K 15%

*E play applied*  
*Laboratory did not play data.*

The Furnace Atomic Absorption Analysis Scheme was followed correctly.

YES ☒

NO ☐

All holding times were met.

YES ☒

NO ☐

Comments:

U.S. EPA Contract Laboratory Program  
Sample Management Office  
P.O. Box 818 - Alexandria, VA 22313  
703/557-2490 FTS: 8-557-2490

Reg. 2  
Date 8/22/86

COVER PAGE  
INORGANIC ANALYSES DATA PACKAGE

Lab Name HITTMAN EBASCO ASSOC. INC.

Case No. 6218

SOW No. 7/85

Q.C. Report No. 55

Lab Receipt Date 7/16/86

Sample Numbers

EPA No.	Lab ID No.	EPA No.	Lab ID No.
MHD 861	★		
862			
863			
864			
865			

Comments:

★ - same as EPA #. CV - cold Vapor  
Sb - furnace spike levels used for ICAP analysis,  
ICS (final) not run. Analyst will be more careful in  
the future.

ICP interelement and background corrections applied? Yes ☒ No ☐.

If yes, corrections applied before ☒ or after ☐ generation of raw data.

Footnotes:

NR - Not required by contract at this time

Form I:

Value - If the result is a value greater than or equal to the instrument detection limit but less than the contract-required detection limit, report the value in brackets (i.e., [10]). Indicate the analytical method used with P (for ICP), A (for Flame AA) or F (for Furnace AA).

U - Indicates element was analyzed for but not detected. Report with the instrument detection limit value (e.g., 10U).

E - Indicates a value estimated or not reported due to the presence of interference. Explanatory note included on cover page.

S - Indicates value determined by Method of Standard Addition.

N - Indicates spike sample recovery is not within control limits.

\* - Indicates duplicate analysis is not within control limits.

+ - Indicates the correlation coefficient for method of standard addition is less than 0.995

M - Indicates duplicate injection results exceeded control limits.

Indicate method used: P for ICP; A for Flame AA and F for Furnace.

Corrected form

Ref 2

Form I

U.S. EPA Contract Laboratory Program  
Sample Management Office  
P.O. Box 818 - Alexandria, VA 22313  
703/557-2490 FTS: 8-557-2490

EPA Sample No.

MHD 861

Date

8/22/86

INORGANIC ANALYSIS DATA SHEET

LAB NAME HITTMAN EBASCO ASSOC. INC.

CASE NO.

6218

SOW NO. 7/85

LAB SAMPLE ID. NO. N/A

QC REPORT NO.

55

Elements Identified and Measured

Concentration:

Low

X

Medium

Matrix: Water

Soil

X

Sludge

Other

ug/L or mg/kg dry weight (Circle One)

1. Aluminum	11300 P*	13. Magnesium	36700 P*
2. Antimony	89 P N E	14. Manganese	15400 P* K*
3. Arsenic	7.5 F N S	15. Mercury	0.20 V N*
4. Barium	144 P* K*	16. Nickel	52 P* K*
5. Beryllium	44 P* K* 43 P* K* E	17. Potassium	[965] P E
6. Cadmium	12 P*	18. Selenium	1.00 F N
7. Calcium	129000 P*	19. Silver	2.00 F
8. Chromium	743 F* S	20. Sodium	5130 P
9. Cobalt	159 P* K* E	21. Thallium	2.00 F N
10. Copper	100 P* K*	22. Vanadium	1390 P* K* E
11. Iron	103000 P	23. Zinc	84 P*
12. Lead	418 F*	Percent Solids (T)	98.7
Cyanide	NR		

Footnotes: For reporting results to EPA, standard result qualifiers are used as defined on Cover Page. Additional flags or footnotes explaining results are encouraged. Definition of such flags must be explicit and contained on Cover Page, however.

Comments: Color - white; clarity - opaque; texture medium

Lab Manager

Teri Solomon

Corrected Form

Ref. 2

Form I

U.S. EPA Contract Laboratory Program  
Sample Management Office  
P.O. Box 818 - Alexandria, VA 22313  
703/557-2490 FTS: 8-557-2490

EPA Sample No.

MHD 862

Date 8/22/86

INORGANIC ANALYSIS DATA SHEET

LAB NAME HITTMAN EBASCO ASSOC. INC.

CASE NO. 6218

SOW NO. 7/85

LAB SAMPLE ID. NO. N/A

QC REPORT NO. 55

Elements Identified and Measured

Concentration: Low ☒ Medium ☐  
Matrix: Water ☐ Soil ☒ Sludge ☐ Other ☐

ug/L or mg/kg dry weight (Circle One)

1. Aluminum	3790P*	13. Magnesium	14200P*
2. Antimony	18PN, E	14. Manganese	284PA**
3. Arsenic	87FN	15. Mercury	1.0CVN*
4. Barium	95PA**	16. Nickel	12PA**
5. Beryllium	0.4UPA** E	17. Potassium	[436]P E
6. Cadmium	3.9P*	18. Selenium	1.0UFNS
7. Calcium	46900P*	19. Silver	2.0UF
8. Chromium	17F*S	20. Sodium	[336]P
9. Cobalt	[2.9]PA** E	21. Thallium	2.4FN
10. Copper	21PA**	22. Vanadium	11PA** E
11. Iron	10600P	23. Zinc	440P*
12. Lead	4.77F*	Percent Solids (%)	98.2
Cyanide	NR		

Footnotes: For reporting results to EPA, standard result qualifiers are used as defined on Cover Page. Additional flags or footnotes explaining results are encouraged. Definition of such flags must be explicit and contained on Cover Page, however.

Comments: color-white; clarity-opaque; texture coarse

Lab Manager Yvonne Solomon

Corrected Form

Ref. 2

Form I

U.S. EPA Contract Laboratory Program  
Sample Management Office  
P.O. Box 818 - Alexandria, VA 22313  
703/537-2490 FTS: 8-557-2490

EPA Sample No.

MHD863

Date 8/22/86

INORGANIC ANALYSIS DATA SHEET

LAB NAME HITTMAN EBASCO ASSOC. INC.

CASE NO. 6218

SOW NO. 7/85

LAB SAMPLE ID. NO. N/A

QC REPORT NO. 55

Elements Identified and Measured

Concentration: Low X Medium \_\_\_\_\_  
Matrix: Water \_\_\_\_\_ Soil X Sludge \_\_\_\_\_ Other \_\_\_\_\_

ug/L or mg/kg dry weight (Circle One)

1. Aluminum	11900P*	13. Magnesium	55800P*
2. Antimony	70P N E	14. Manganese	8320P A K H
3. Arsenic	7.7 F N	15. Mercury	0.50 V N*
4. Barium	200P A K H	16. Nickel	44P A K H
5. Beryllium	5.2P A K H E	17. Potassium	1480 P E
6. Cadmium	5.2 L K H 12P*	18. Selenium	1.0 U F N
7. Calcium	143000P*	19. Silver	2.0 U F
8. Chromium	443F*	20. Sodium	5620 P
9. Cobalt	14P A K H E	21. Thallium	2.0 U F N
10. Copper	44P A K H	22. Vanadium	561P A K H E
11. Iron	94200P	23. Zinc	331P*
12. Lead	133F*	Percent Solids (X)	99.3
Cyanide	NR		

Footnotes: For reporting results to EPA, standard result qualifiers are used as defined on Cover Page. Additional flags or footnotes explaining results are encouraged. Definition of such flags must be explicit and contained on Cover Page, however.

Comments: Sample description: color-white; clarity-opaque; texture-medium

Lab Manager Phil Solomon



Corrected Form

Ref. 2

Form I

U.S. EPA Contract Laboratory Program  
Sample Management Office  
P.O. Box 818 - Alexandria, VA 22313  
703/557-2490 FTS: 8-557-2490

EPA Sample No.  
MHD 864

Date 8/22/86

INORGANIC ANALYSIS DATA SHEET

LAB NAME HITTMAN EBASCO ASSOC. INC.

CASE NO. 6218

SOW NO. 7/85

LAB SAMPLE ID. NO. N/A

QC REPORT NO. 55

Elements Identified and Measured

Concentration: Low X Medium \_\_\_\_\_  
Matrix: Water \_\_\_\_\_ Soil X Sludge \_\_\_\_\_ Other \_\_\_\_\_

ug/L or mg/kg dry weight (Circle One)

1. Aluminum	<u>10500P*</u>	13. Magnesium	<u>3560P*</u>
2. Antimony	<u>40PN E</u>	14. Manganese	<u>112PA*KH</u>
3. Arsenic	<u>2.1UFN</u>	15. Mercury	<u>ND.4E+0.5CVN*</u>
4. Barium	<u>668PA*KH</u>	16. Nickel	<u>21PA*KH</u>
5. Beryllium	<u>16P* 1.4RN*E</u>	17. Potassium	<u>1160P E</u>
6. Cadmium	<u>4.5P*</u>	18. Selenium	<u>1.0UFN</u>
7. Calcium	<u>6350P*</u>	19. Silver	<u>2.1UF</u>
8. Chromium	<u>21F* 4.3F*S</u>	20. Sodium	<u>1030UP* (976)P</u>
9. Cobalt	<u>11PA*KH E</u>	21. Thallium	<u>2.1UFN</u>
10. Copper	<u>15PA*KH</u>	22. Vanadium	<u>81PA*KH E</u>
11. Iron	<u>33900P</u>	23. Zinc	<u>96P*</u>
12. Lead	<u>3500F* 13F*S</u>	Percent Solids (%)	<u>97.3</u>
Cyanide	<u>NR</u>		

Footnotes: For reporting results to EPA, standard result qualifiers are used as defined on Cover Page. Additional flags or footnotes explaining results are encouraged. Definition of such flags must be explicit and contained on Cover Page, however.

Comments: sample description: color-white; clarity-opaque; texture-coarse

Lab Manager John Solomon

Connected Form

Form I

U.S. EPA Contract Laboratory Program  
Sample Management Office  
P.O. Box 818 - Alexandria, VA 22313  
703/557-2490 FTS: 8-557-2490

EPA Sample No.

MHD 865

Date

8/22/86

INORGANIC ANALYSIS DATA SHEET

LAB NAME HITTMAN EBASCO ASSOC. INC.

CASE NO. 6218

SOW NO. 7/85

LAB SAMPLE ID. NO. N/A

QC REPORT NO. 55

Elements Identified and Measured

Concentration:

Low ☒

Medium ☐

Matrix: Water ☐

Soil ☒

Sludge ☐

Other ☐

ug/L or mg/kg dry weight (Circle One)

1. Aluminum	13200P*	13. Magnesium	5550P*
2. Antimony	104PN E	14. Manganese	1730PA**
3. Arsenic	188FN	15. Mercury	3.9CVN*
4. Barium	225PA**	16. Nickel	34PA**
5. Beryllium	3.1P* 3.1P* 1.0PA**	17. Potassium	1960PE
6. Cadmium	38P*	18. Selenium	6.9FNS
7. Calcium	14900P*	19. Silver	18F
8. Chromium	101F** 21F*S	20. Sodium	1320P
9. Cobalt	21PA** E	21. Thallium	13FN
10. Copper	222PA**	22. Vanadium	12PA** E
11. Iron	46100P	23. Zinc	4630P*
12. Lead	3470F*S	Percent Solids (Z)	98.1
Cyanide	NR		

Footnotes: For reporting results to EPA, standard result qualifiers are used as defined on Cover Page. Additional flags or footnotes explaining results are encouraged. Definition of such flags must be explicit and contained on Cover Page, however.

Comments: sample description: color-white; clarity-opaque; texture-medium

Lab Manager

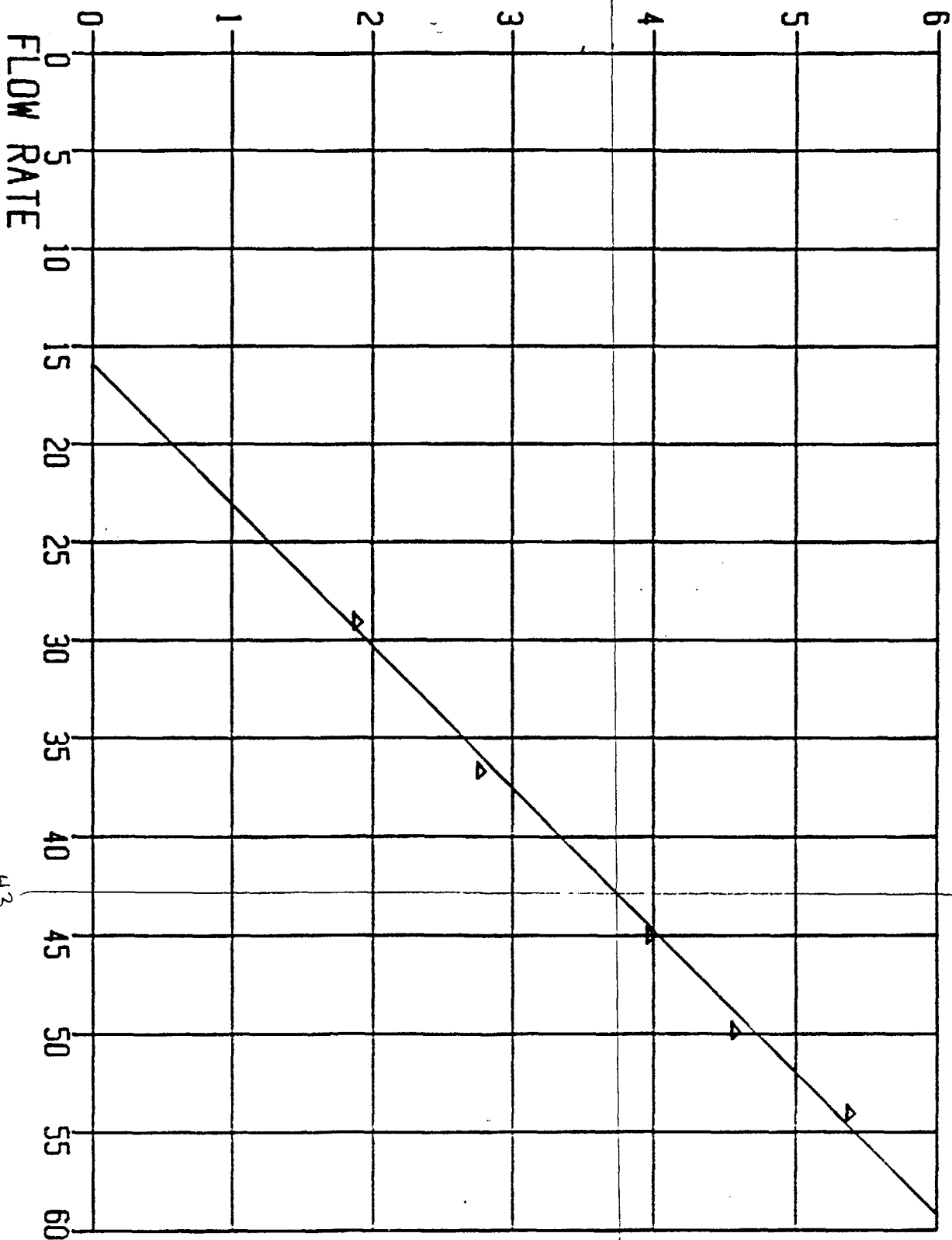
Harold Salomon

Ref 2

APPENDIX III  
CALIBRATION DATA

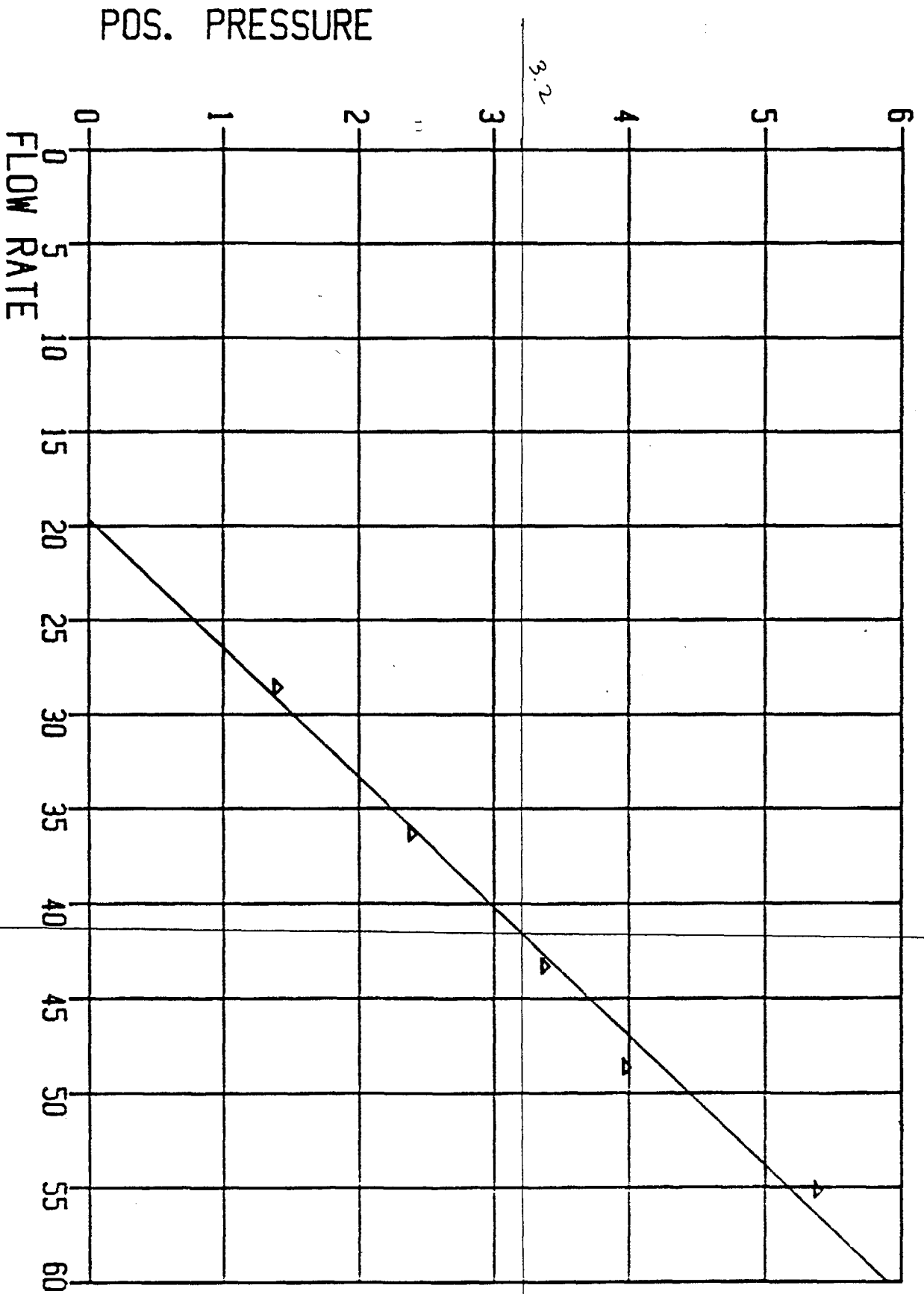
AM 01 DAY 1

POS. PRESSURE



*Handwritten signature*

AM 02 DAY 1



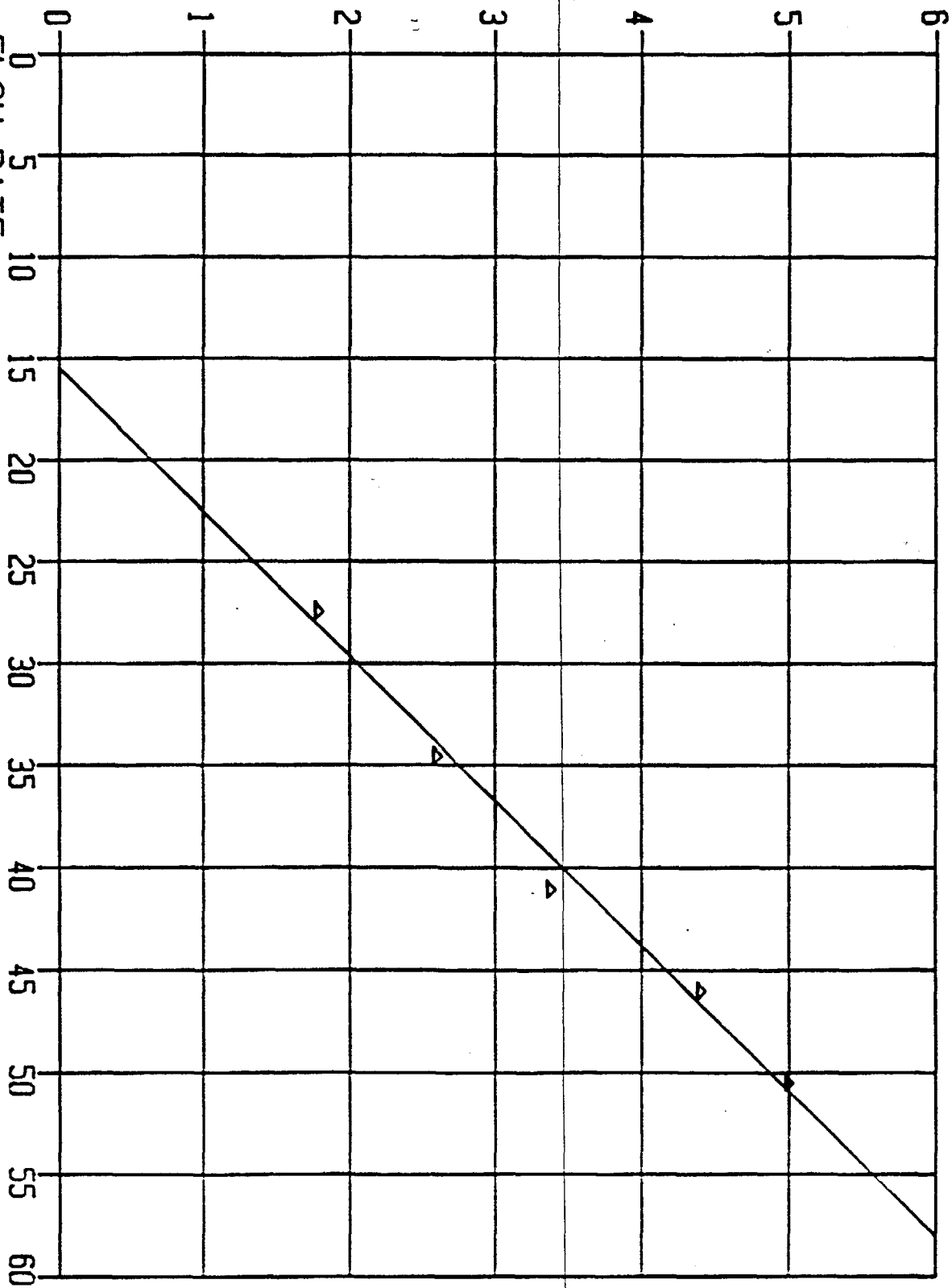
Ref. 2

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POS. PRESSURE

AM 03 DAY 1

FLOW RATE

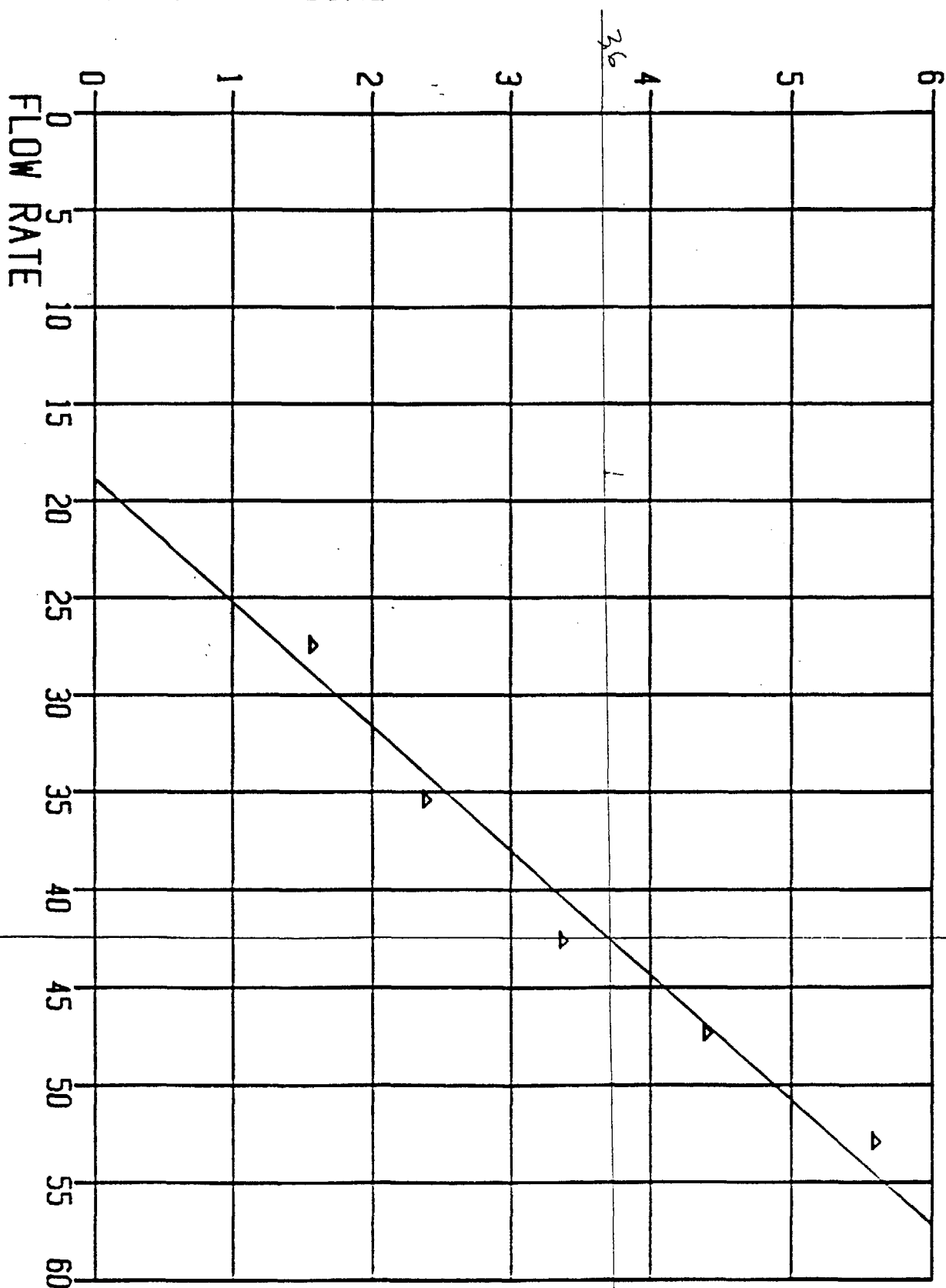


40

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AM 04 DAY 1

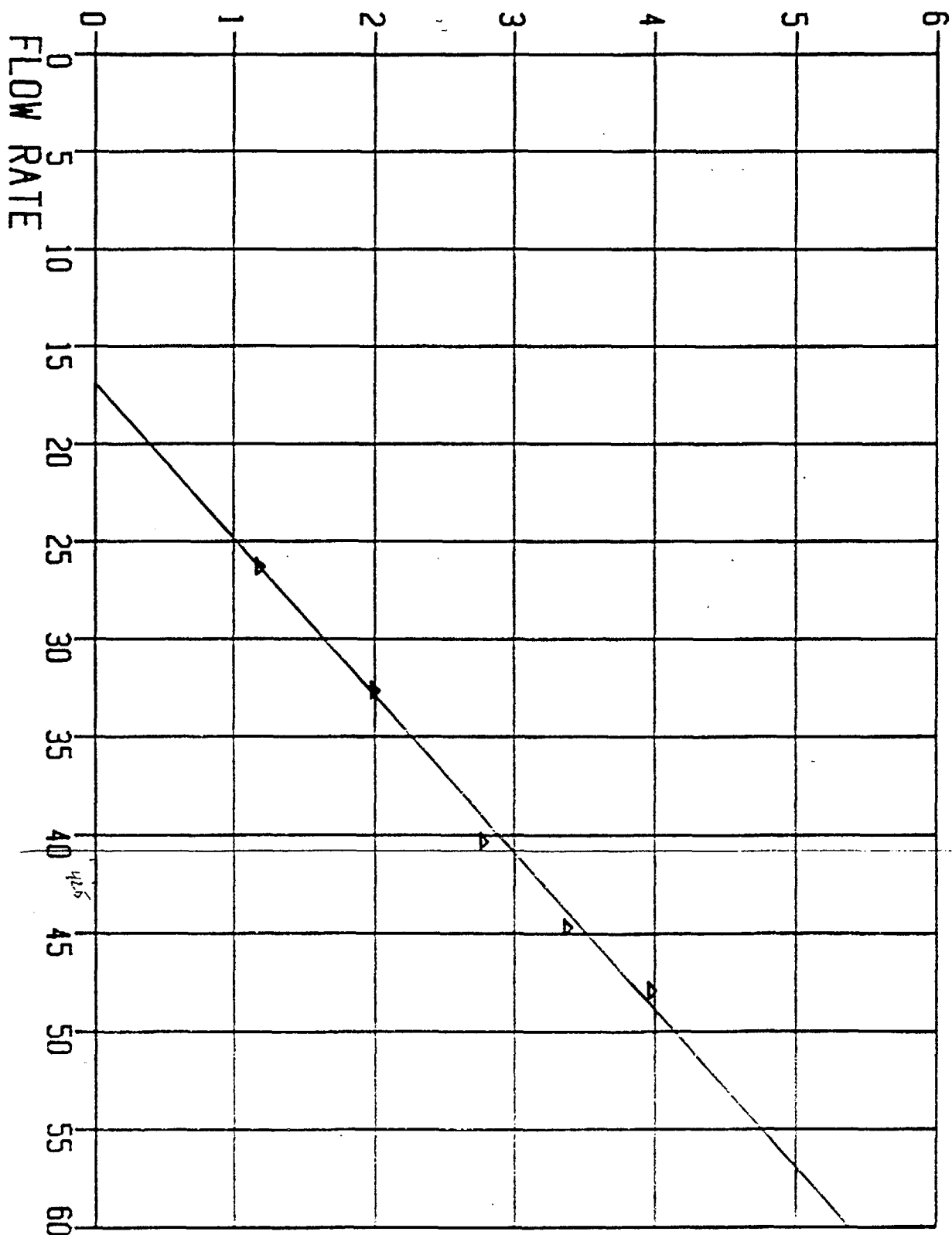
POS. PRESSURE



Ref. 2

AM 05 DAY 1

POS. PRESSURE



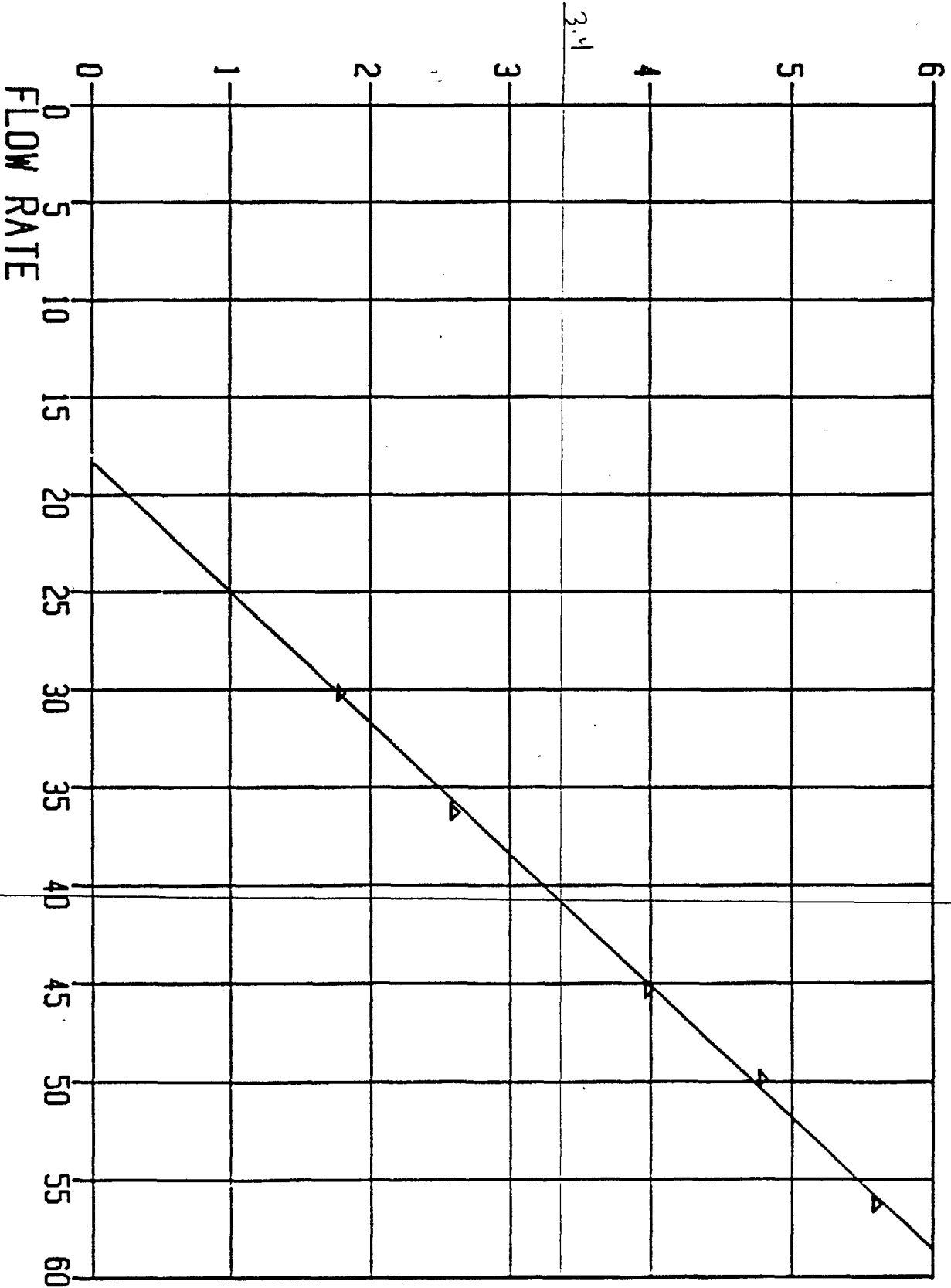
41

41.5



AM 01 DAY 2

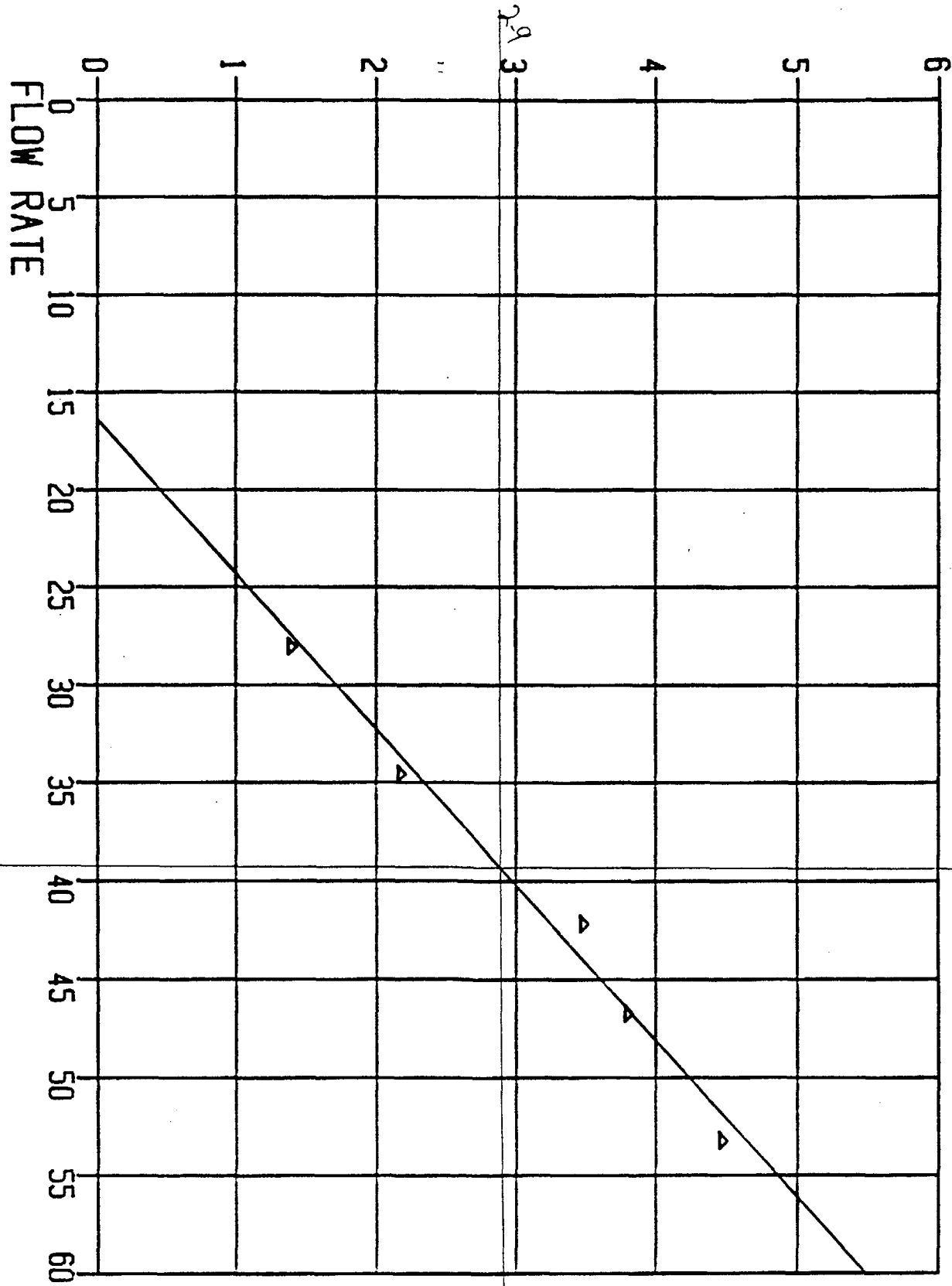
POS. PRESSURE



4/2/2

AM 02 DAY 2

POS. PRESSURE

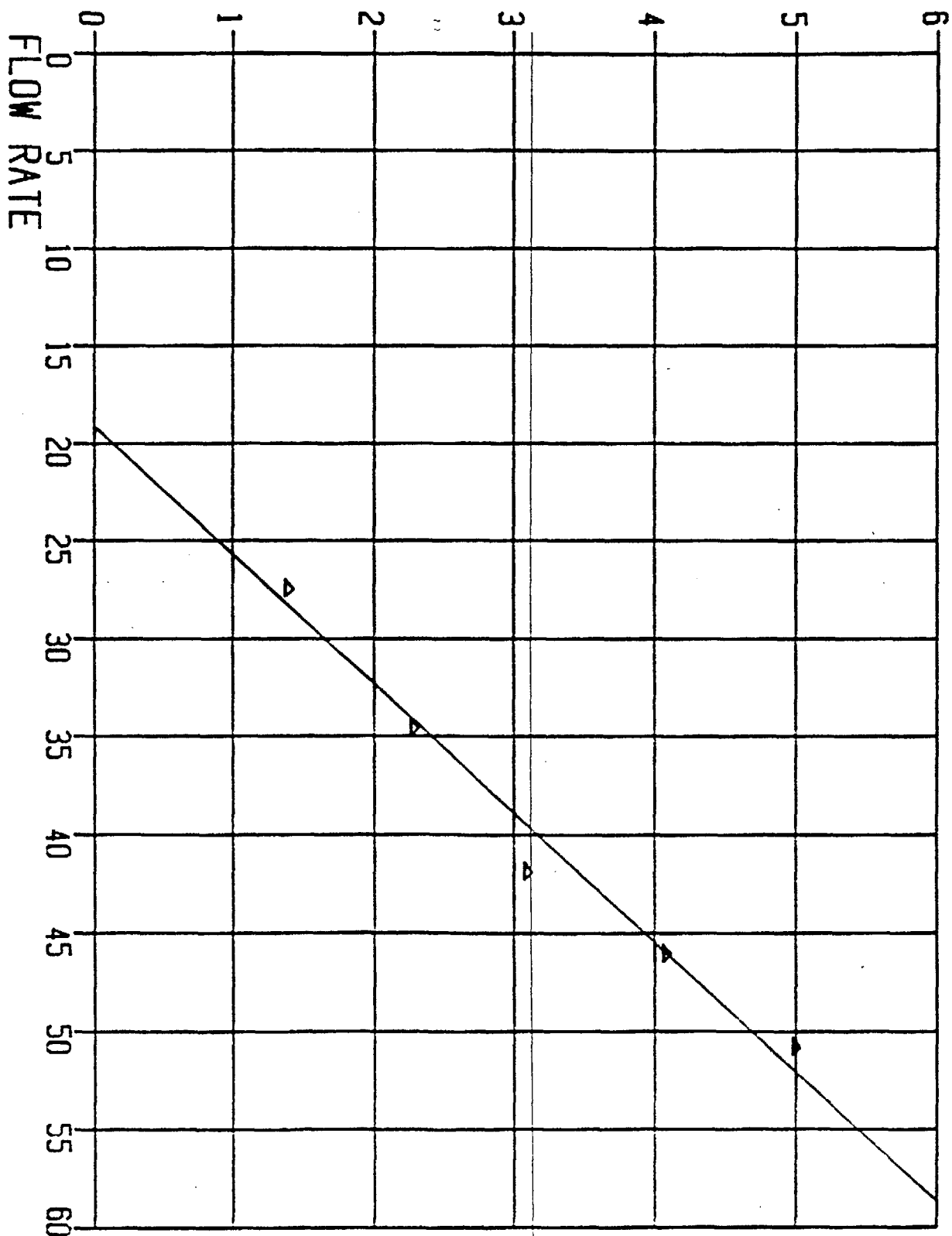


2.7/2

39

AM 03 DAY 2

POS. PRESSURE



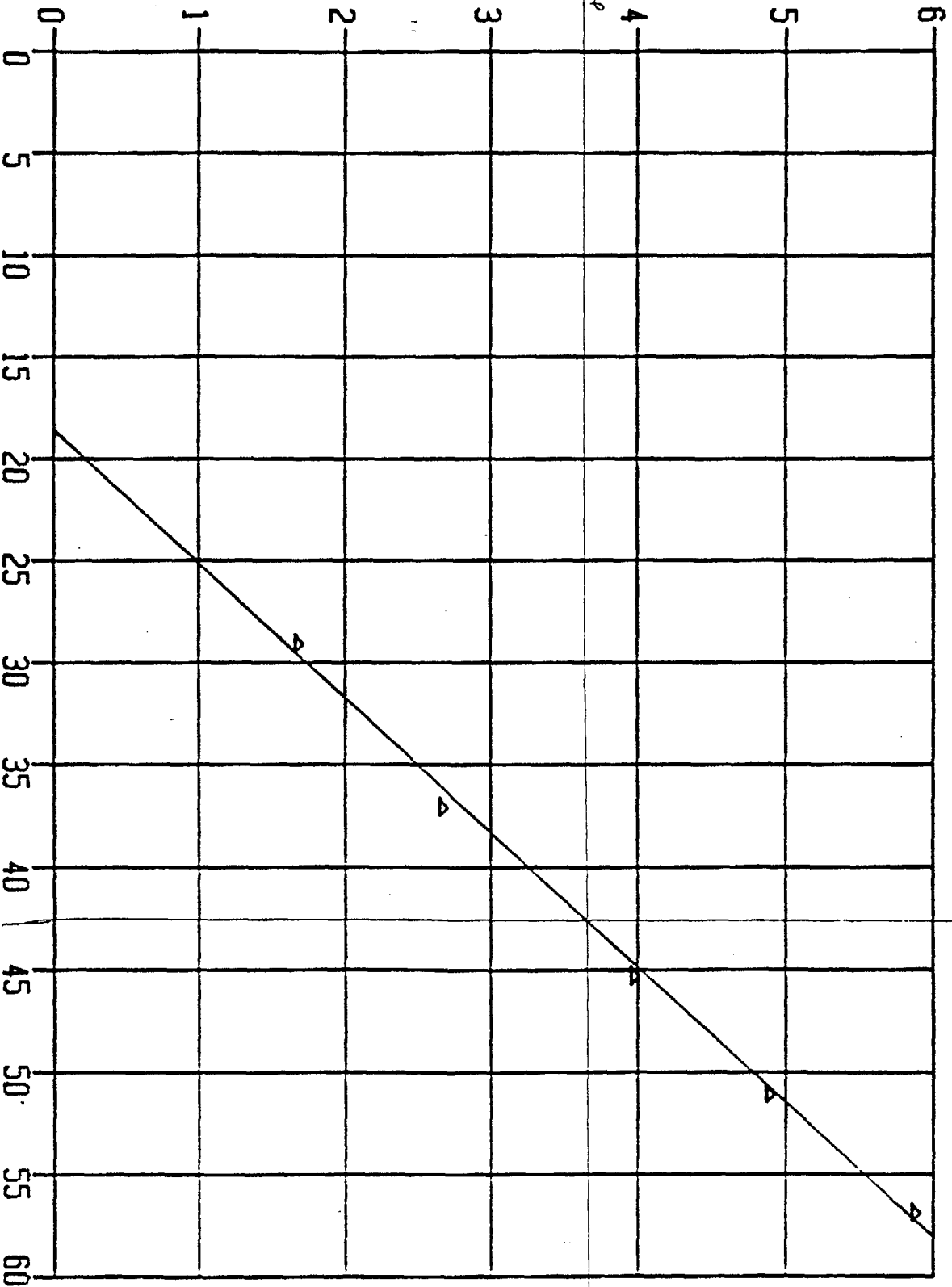
40  
39.5

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AM 04 DAY 2

POS. PRESSURE

FLOW RATE



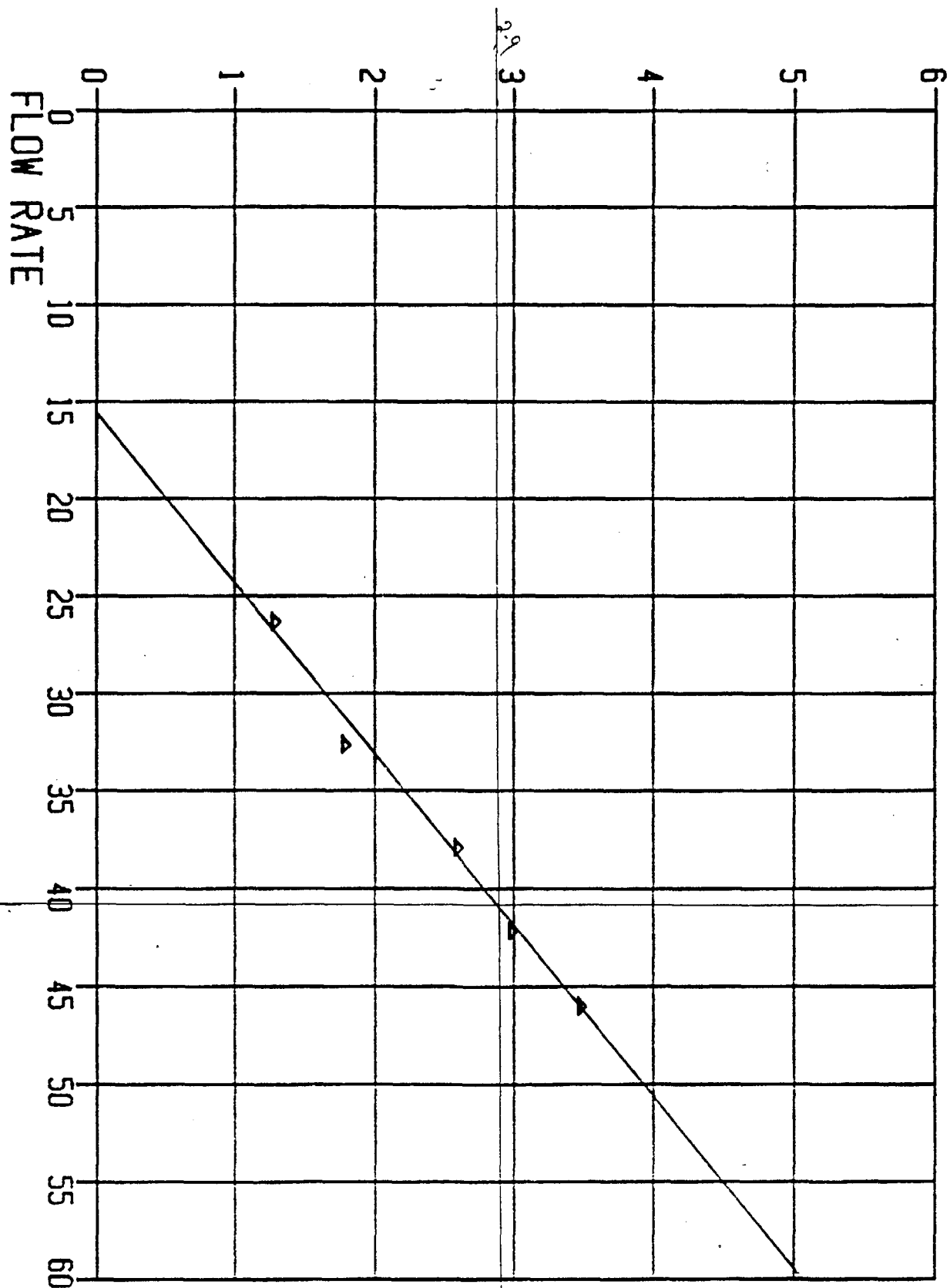
3.6

42.5

7/2

AM 05 DAY 2

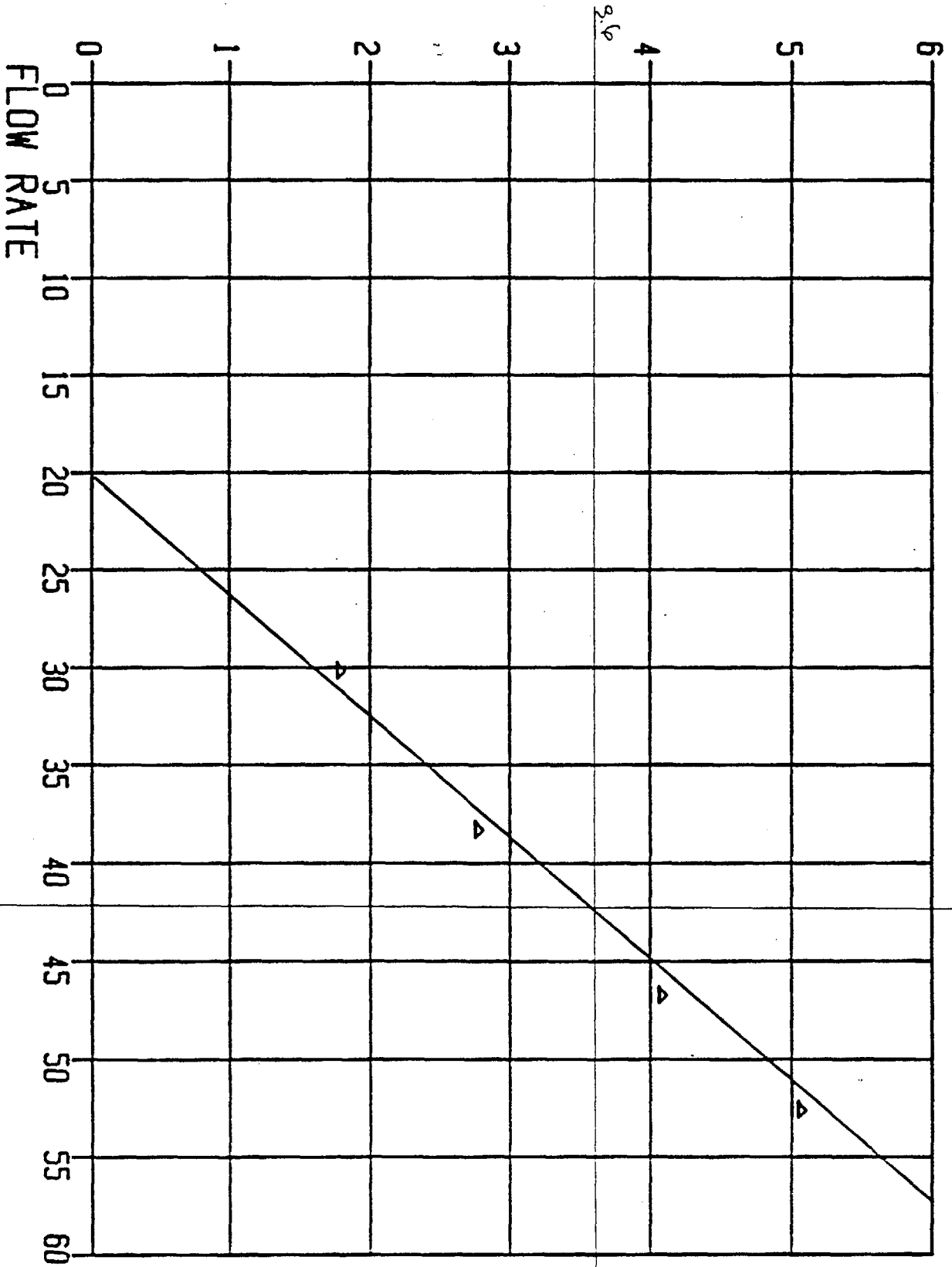
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Ref 2

AM 01 DAY 3

POS. PRESSURE

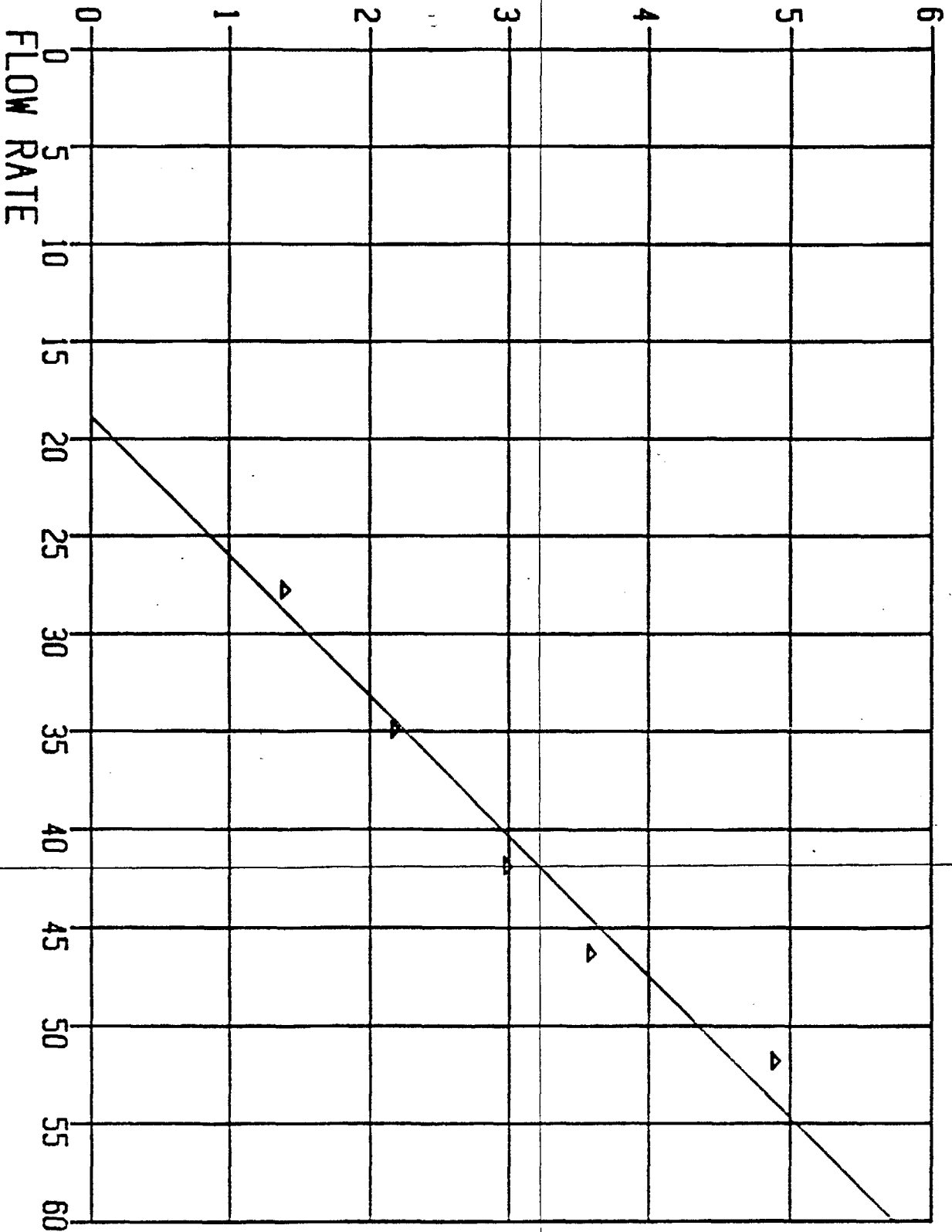


42.5

42.5

AM 02 DAY 3

POS. PRESSURE



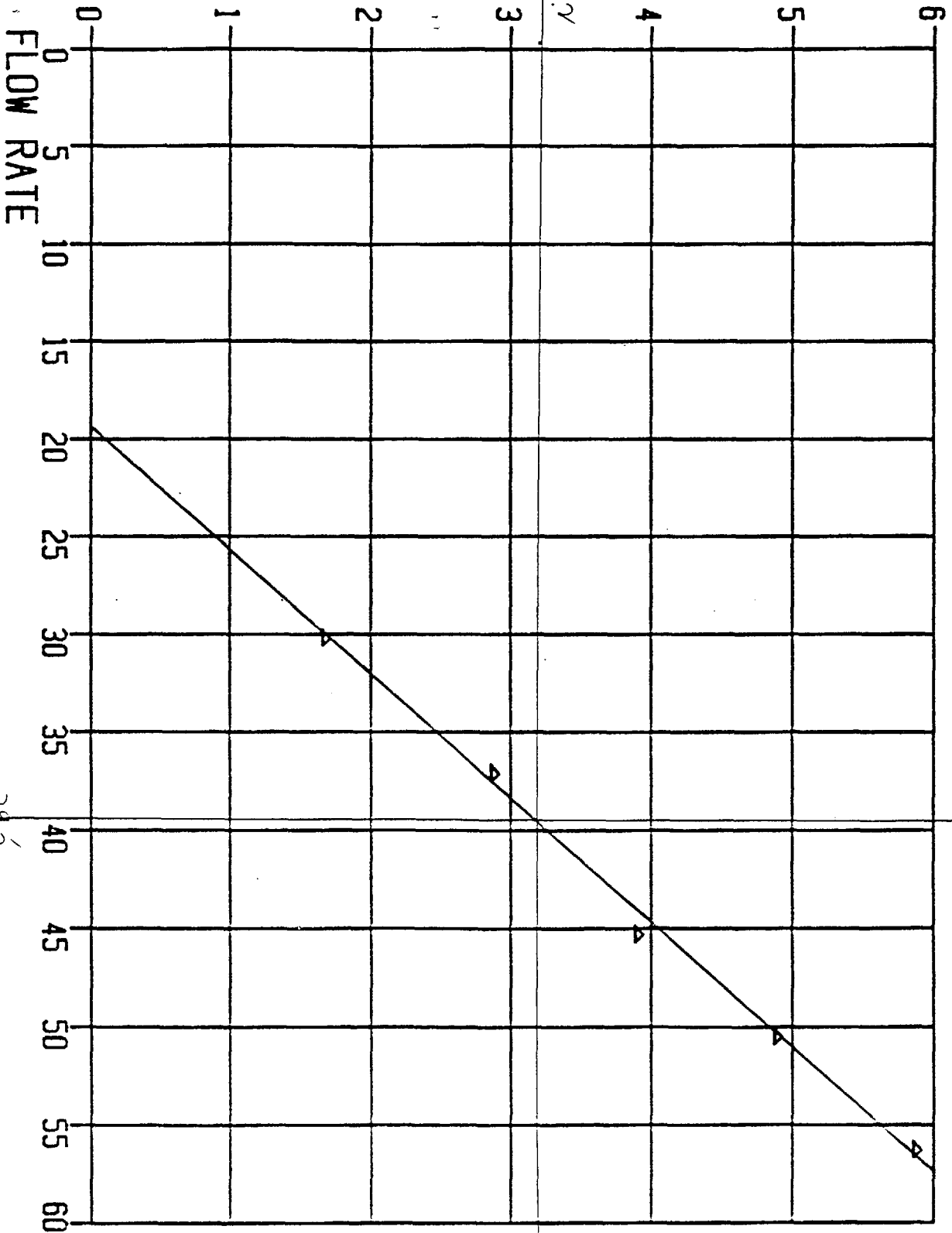
42

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POS. PRESSURE

AM 03 DAY 3

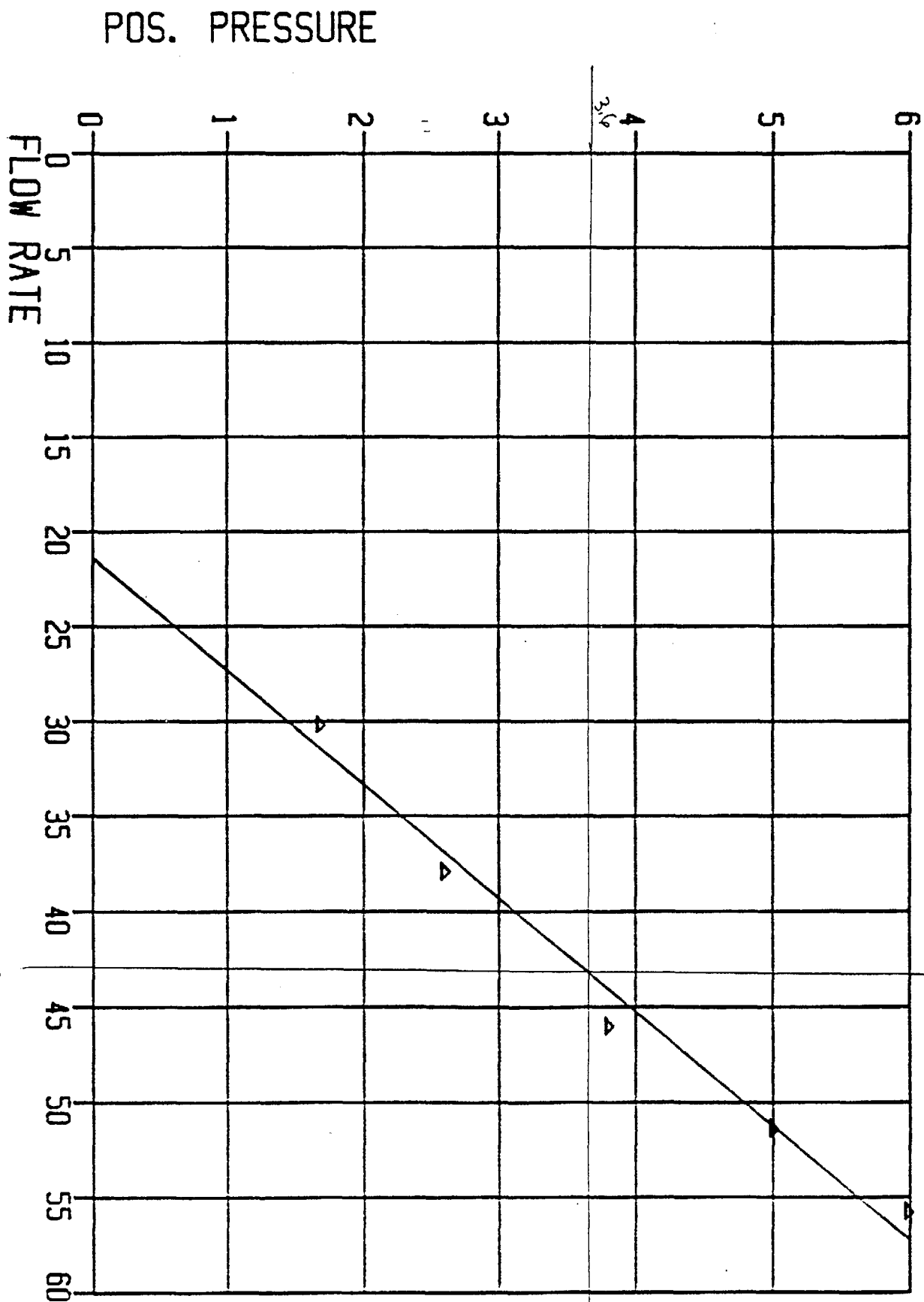
FLOW RATE



3.7



AM 04 DAY 3



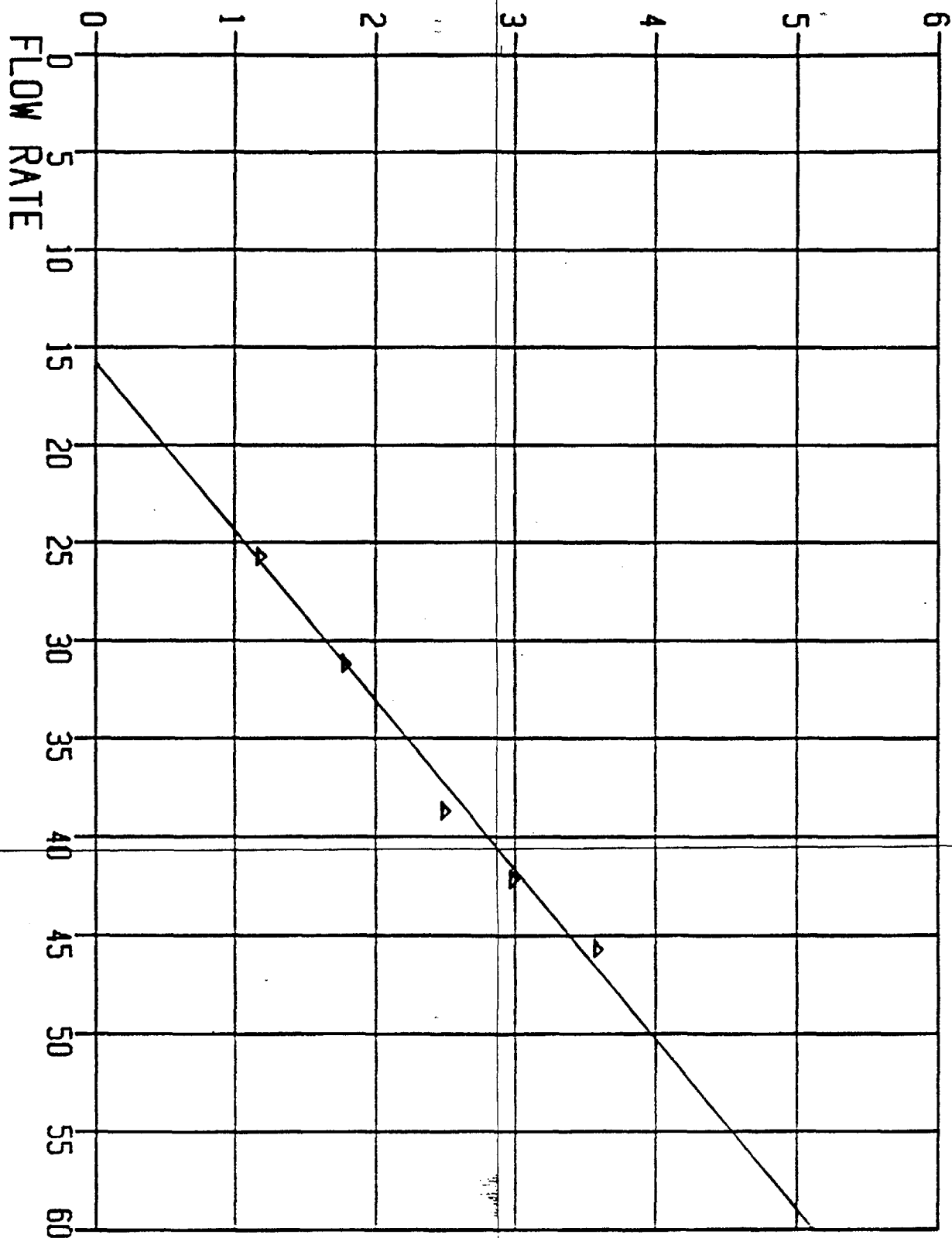
43

43

43

AM 05 DAY 3

POS. PRESSURE

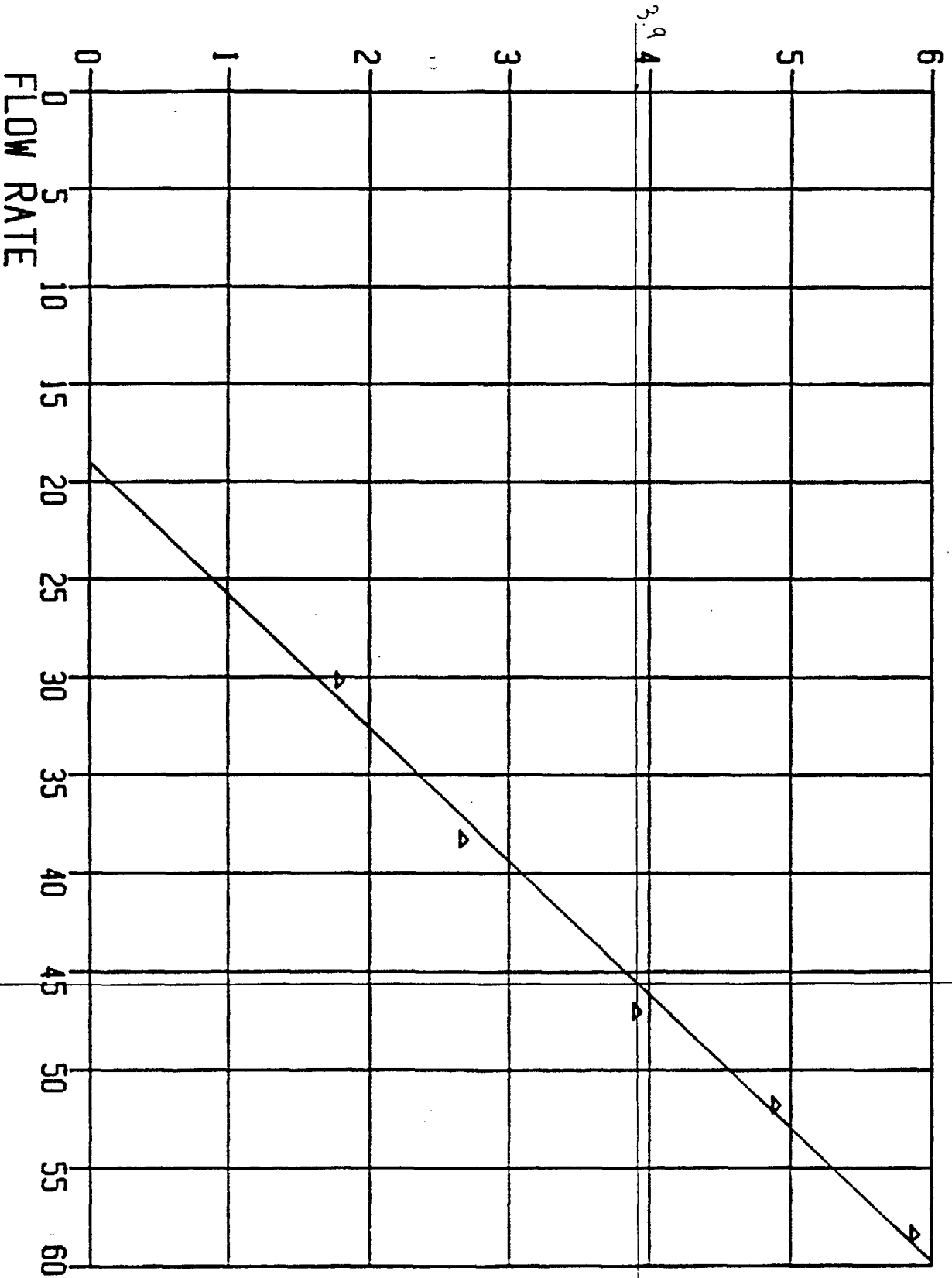


40.5

Day 3

AM 01 DAY 4

POS. PRESSURE

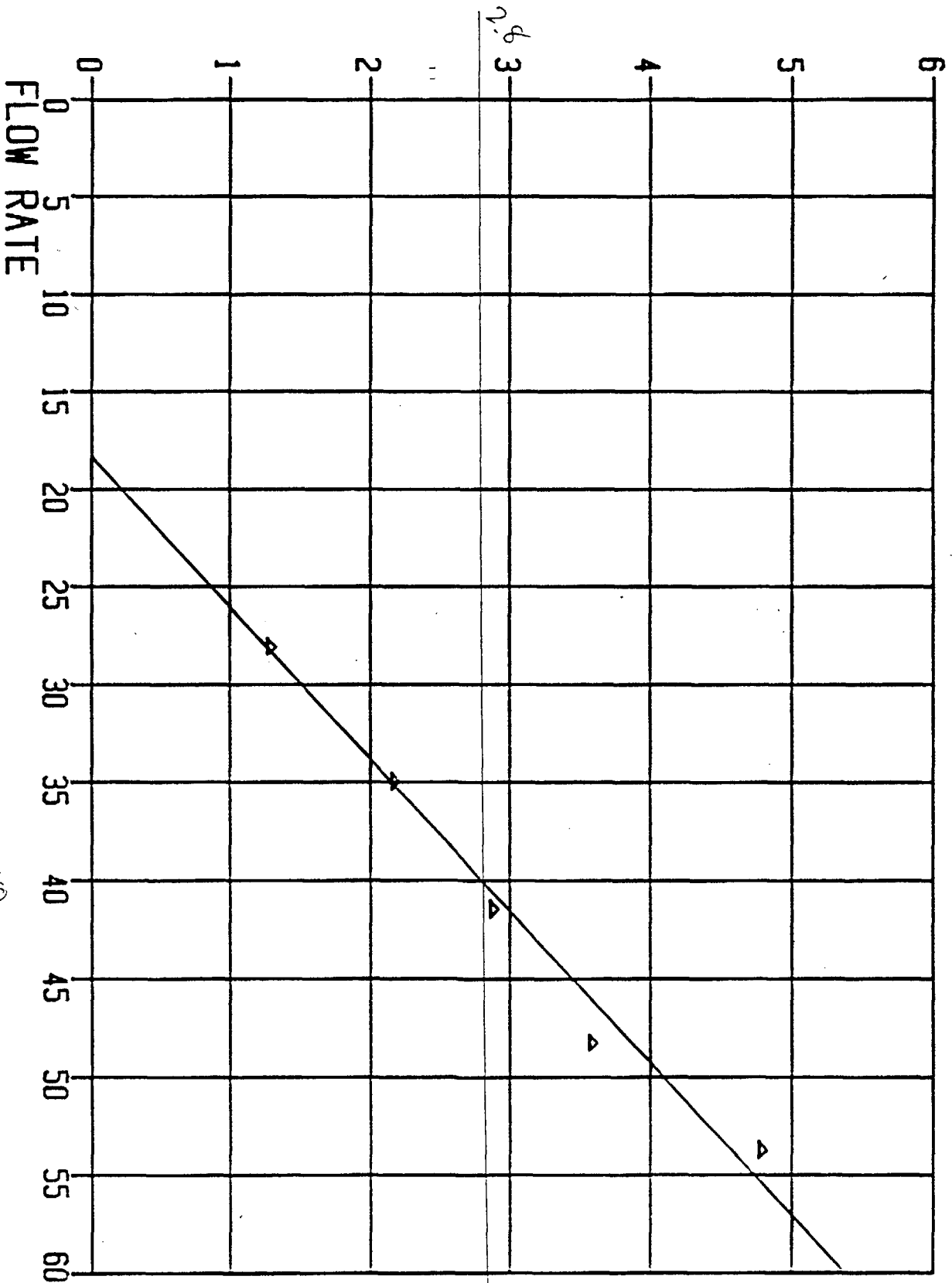


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45.5

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POS. PRESSURE

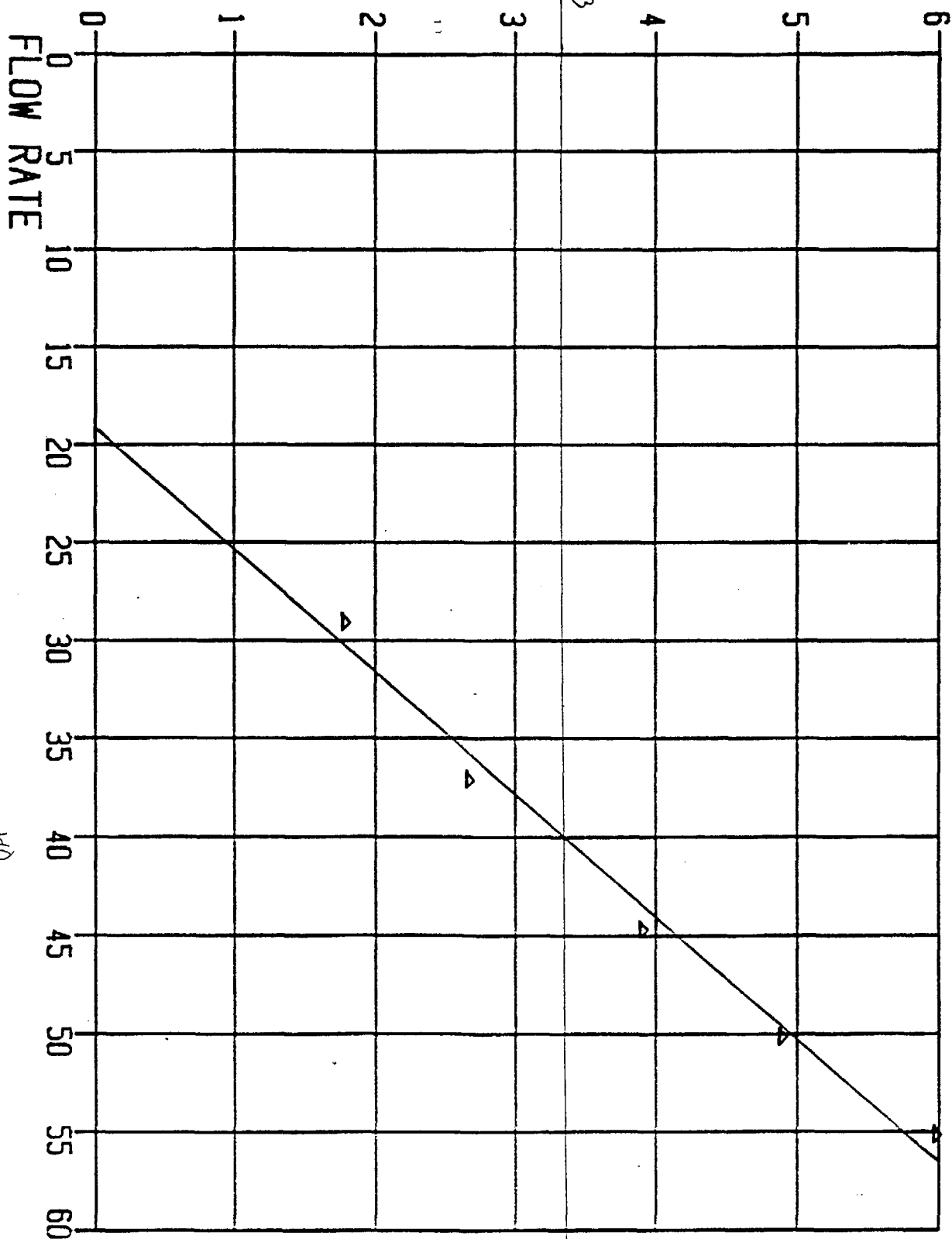


40

Ref 2

AM 03 DAY 4

POS. PRESSURE



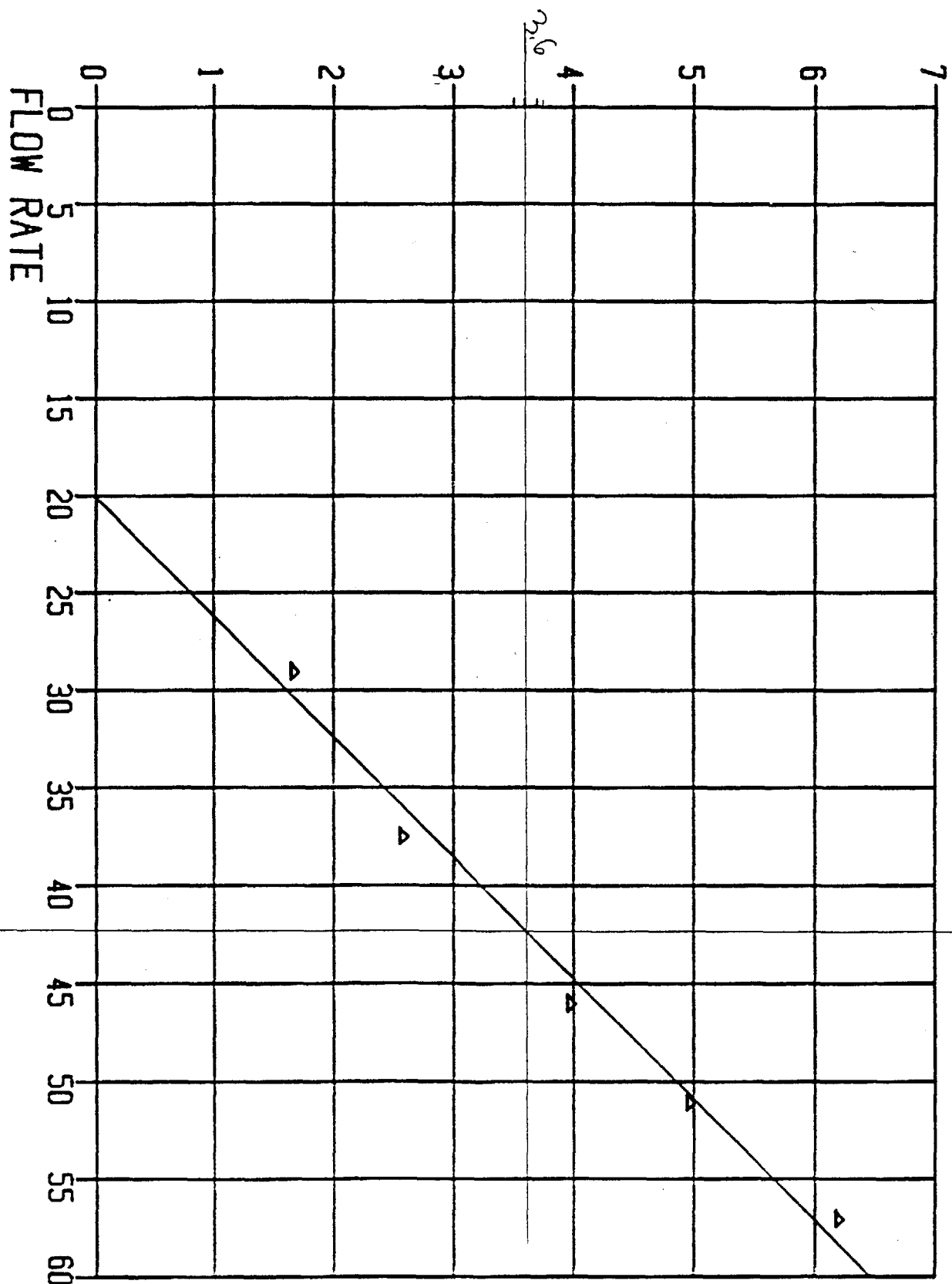
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40

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AM 04 DAY 4

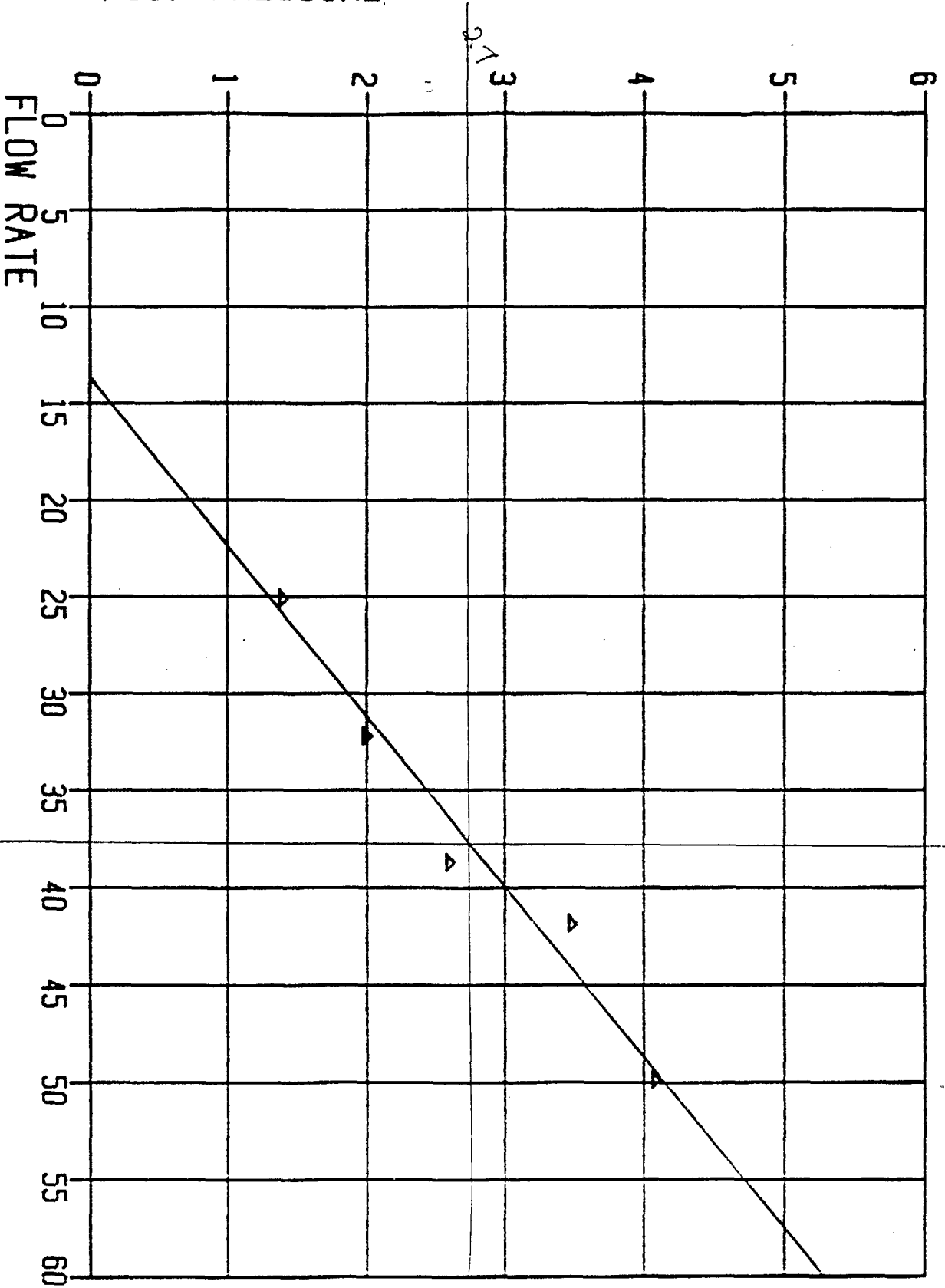
POS. PRESSURE



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POS. PRESSURE

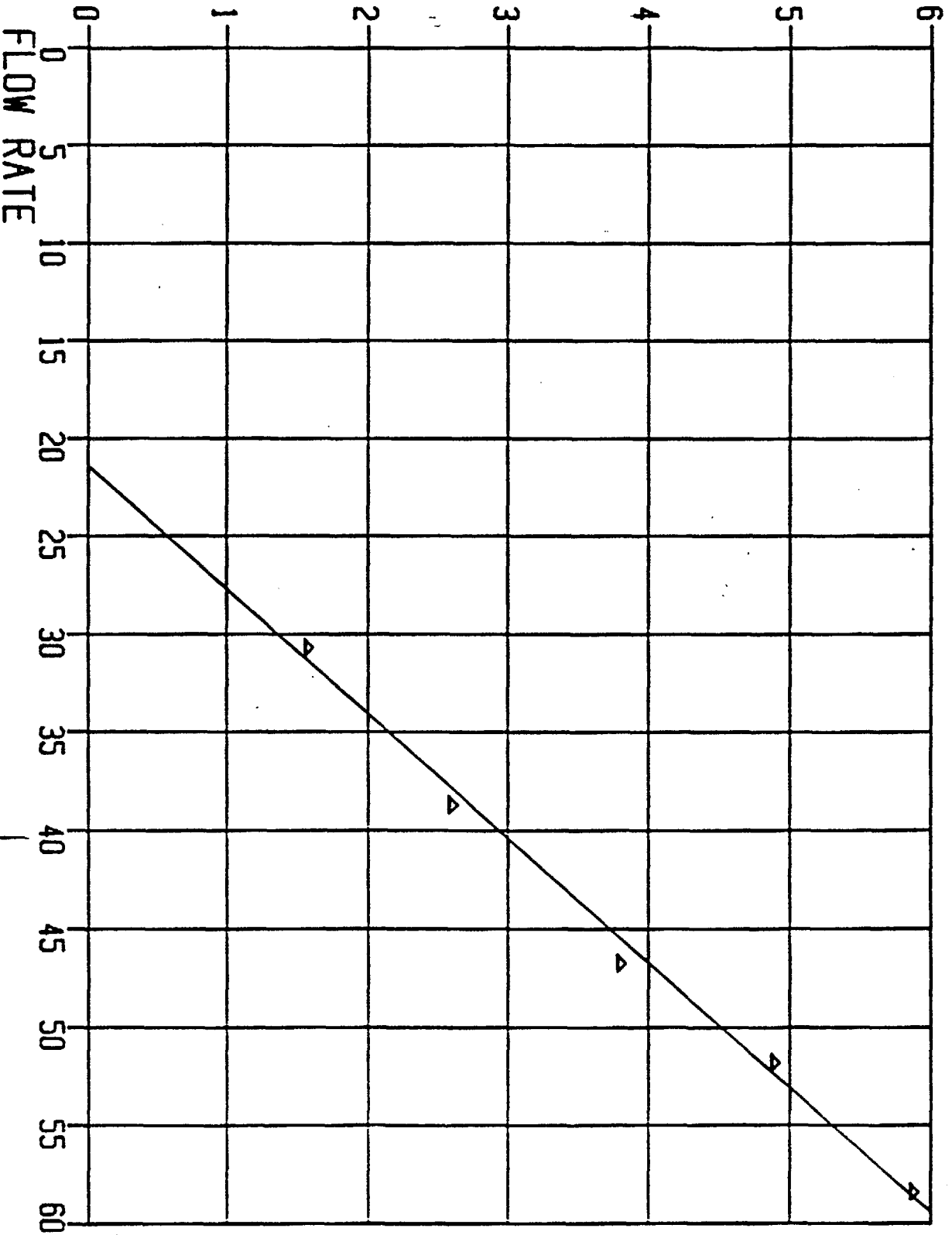


37.5

B2/2

AM 01 DAY 5

POS. PRESSURE



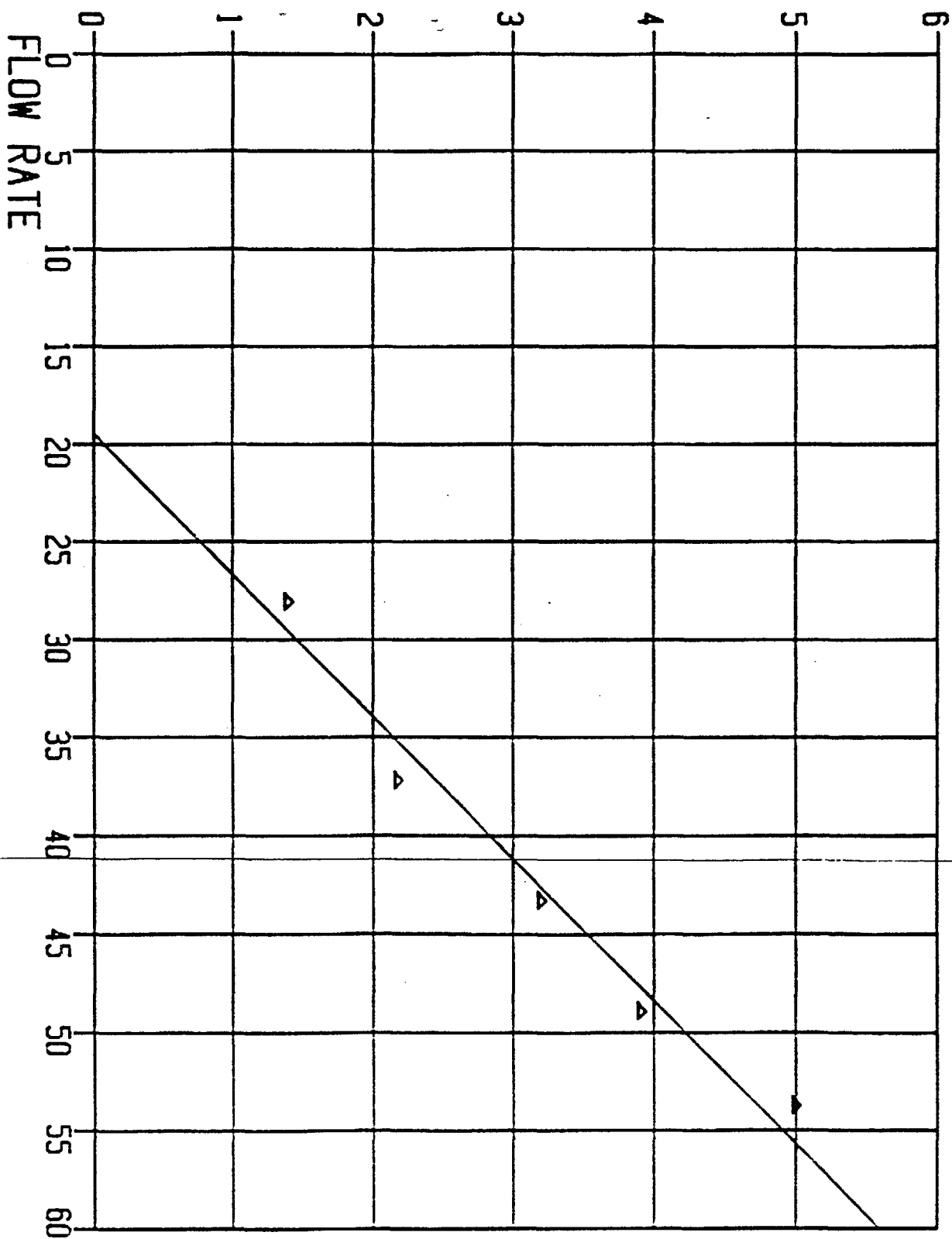
40's

40's



AM 02 DAY 5

POS. PRESSURE

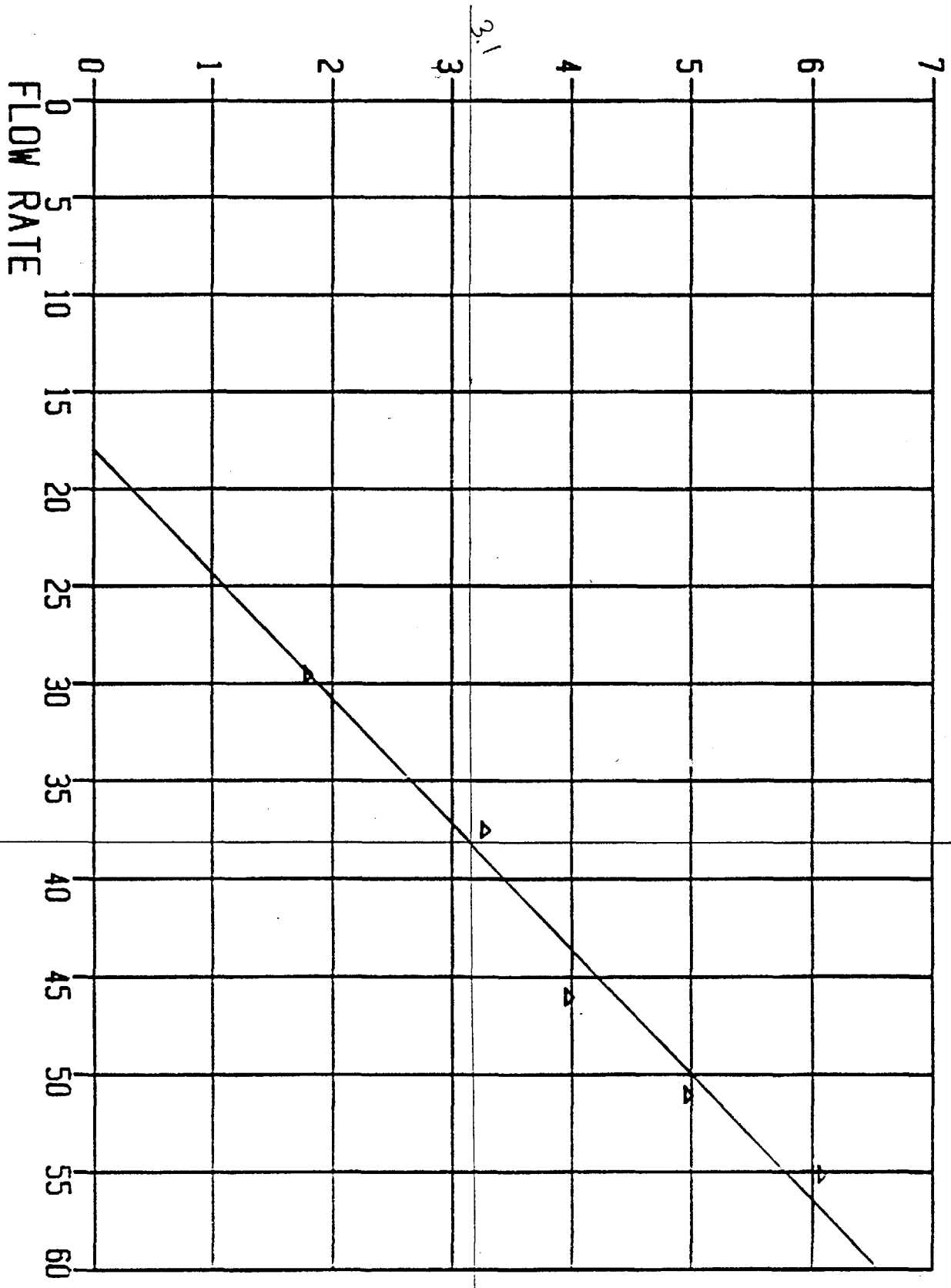


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41

AM 03 DAY 5

POS. PRESSURE

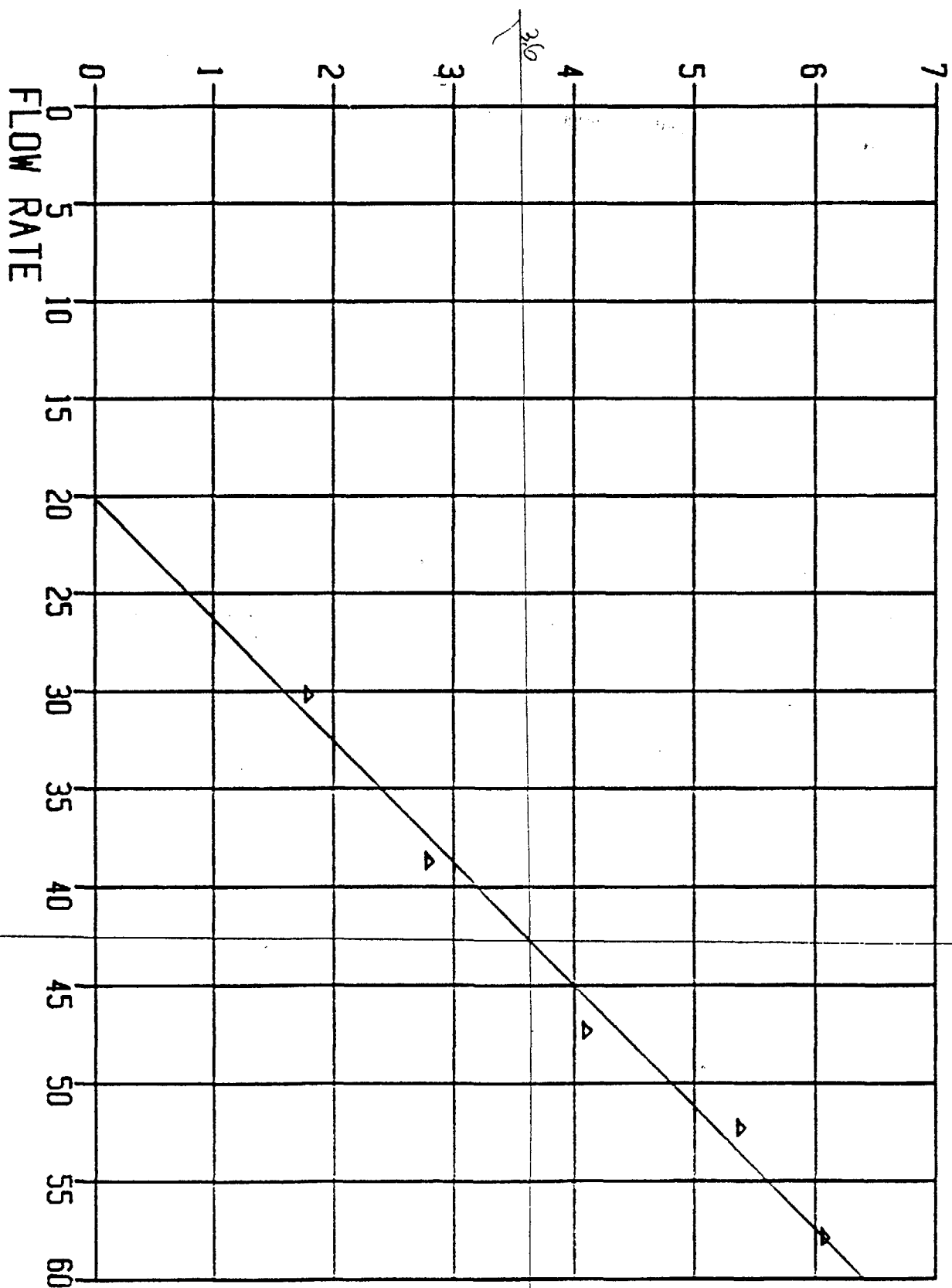


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38

AM 04 DAY 5

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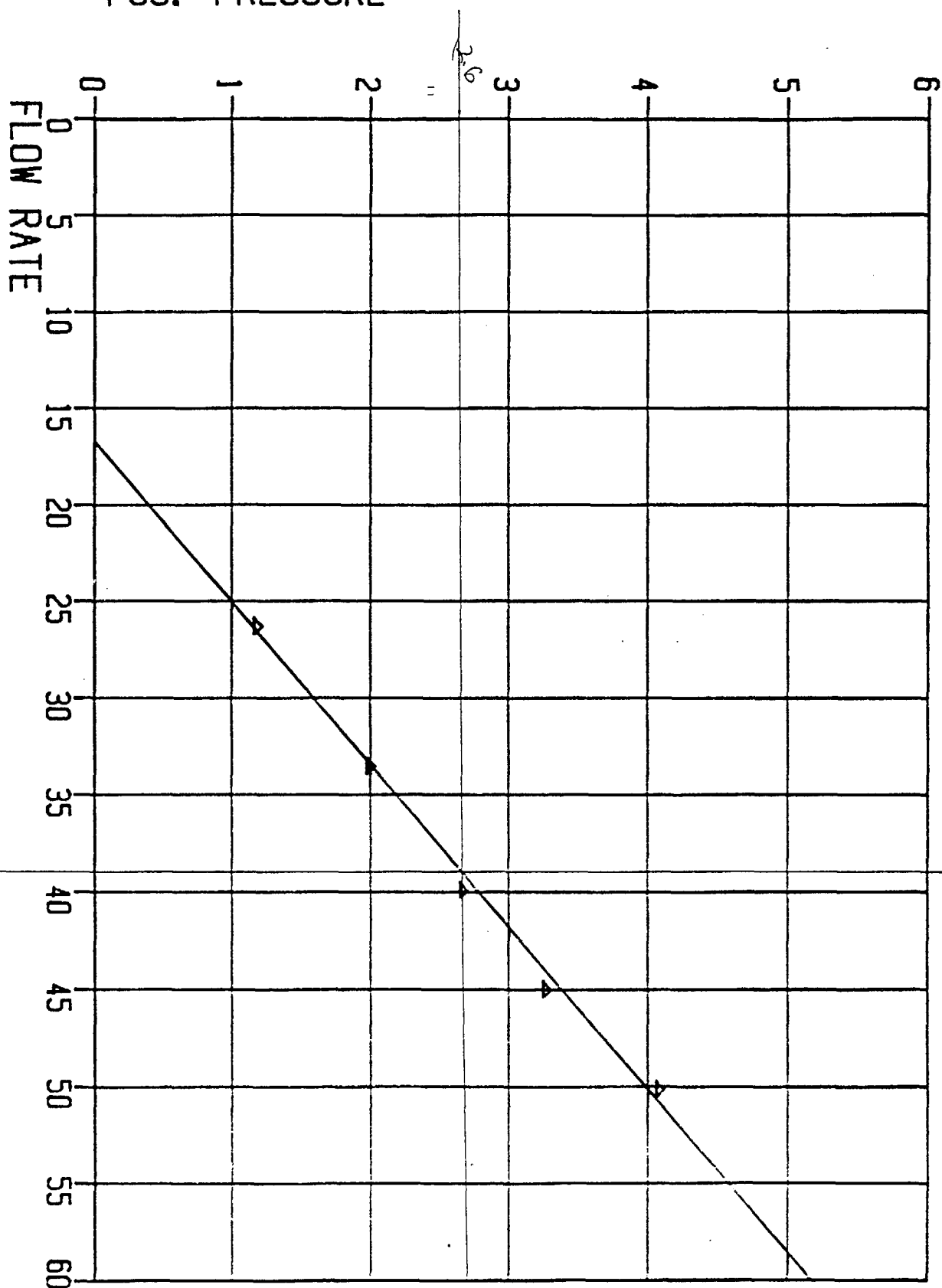


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42.5

POS. PRESSURE

AM 05 DAY 5



39

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Ref. 2

APPENDIX IV  
UPDATED SITE INVESTIGATION FORMS



POTENTIAL HAZARDOUS WASTE SITE  
SITE INSPECTION REPORT  
PART 1 - SITE LOCATION AND INSPECTION INFORMATION

I. IDENTIFICATION

01 STATE UT 02 SITE NUMBER D980952840

II. SITE NAME AND LOCATION

01 SITE NAME (Legal, common, or descriptive name of site) Richardson Flat Tailings 02 STREET, ROUTE NO., OR SPECIFIC LOCATION IDENTIFIER approx. 2.5 miles NE of Park City, Utah  
03 CITY Park City 04 STATE UT 05 ZIP CODE 84060 06 COUNTY Summit 07 COUNTY CODE 043 08 CONG DIST UT-03  
09 COORDINATES 40° 40' 50" N 111° 26' 40" W 10 TYPE OF OWNERSHIP (Check one) ☐ A. PRIVATE ☐ B. FEDERAL ☐ C. STATE ☐ D. COUNTY ☐ E. MUNICIPAL ☐ F. OTHER ☐ G. UNKNOWN

III. INSPECTION INFORMATION

01 DATE OF INSPECTION 6, 19 85 \* 02 SITE STATUS ☐ ACTIVE ☒ INACTIVE 03 YEARS OF OPERATION late 1960's 1981 UNKNOWN  
04 AGENCY PERFORMING INSPECTION (Check all that apply) E&E ☐ A. EPA ☒ B. EPA CONTRACTOR Ecology & Environment Inc. ☐ C. MUNICIPAL ☐ D. MUNICIPAL CONTRACTOR ☐ E. STATE ☐ F. STATE CONTRACTOR ☐ G. OTHER  
05 CHIEF INSPECTOR Susan Kennedy 06 TITLE Terrestrial Biologist 07 ORGANIZATION E&E 08 TELEPHONE NO. 303 757-4984  
09 OTHER INSPECTORS Eric Johnson 10 TITLE EPA Reg. Site Project Officer 11 ORGANIZATION EPA 12 TELEPHONE NO. 303 293-1519  
Jeff Holcomb Chemical Engineer E&E 303 757-4984  
Tom Smith Safety Officer E&E 303 757-4984  
Wade Hansen Geologist Utah Dept. Env. Health 801 533-4145  
Rob Smith Chief Hydrogeologist E&E 303 757-4984  
Dave Tuesday Geochemist E&E 303 757-4984  
13 SITE REPRESENTATIVES INTERVIEWED E.L. Osika, Jr. 14 TITLE Vice President 15 ADDRESS United Park City Mines 309 Kearns Bldg. Salt Lake City, UT 16 TELEPHONE NO. 801 532-4031  
Kerry C. Gee Geologist/Engineer same as above 801 532-4031  
17 ACCESS GAINED BY (Check one) ☒ PERMISSION ☐ WARRANT 18 TIME OF INSPECTION 19 WEATHER CONDITIONS varied

IV. INFORMATION AVAILABLE FROM

01 CONTACT Paula Schmitt diel 02 OF (Agency/Organization) EPA - Region VIII Denver 03 TELEPHONE NO. 303 293-1518  
04 PERSON RESPONSIBLE FOR SITE INSPECTION FORM Susan Kennedy 05 AGENCY EPA 06 ORGANIZATION E&E FIT VIII 07 TELEPHONE NO. (303) 757-4984 08 DATE 8, 27 85  
MONTH DAY YEAR

Re/2

		<b>POTENTIAL HAZARDOUS WASTE SITE SITE INSPECTION REPORT PART 2 - WASTE INFORMATION</b>		<b>I. IDENTIFICATION</b> 01 STATE   02 SITE NUMBER UT   D980952840	
<b>II. WASTE STATES, QUANTITIES, AND CHARACTERISTICS</b>					
<b>01 PHYSICAL STATES</b> <i>(Check all that apply)</i> <input checked="" type="checkbox"/> A. SOLID <input checked="" type="checkbox"/> E. SLURRY <input checked="" type="checkbox"/> B. POWDER, FINES <input type="checkbox"/> F. LIQUID <input type="checkbox"/> C. SLUDGE <input type="checkbox"/> G. GAS <input type="checkbox"/> D. OTHER _____ <i>(Specify)</i>		<b>02 WASTE QUANTITY AT SITE</b> <i>(Measure of waste quantities must be independent)</i> TONS <u>2 million</u> <sup>1</sup> CUBIC YARDS _____ NO. OF DRUMS _____		<b>03 WASTE CHARACTERISTICS</b> <i>(Check all that apply)</i> <input checked="" type="checkbox"/> A. TOXIC <input checked="" type="checkbox"/> E. SOLUBLE <input type="checkbox"/> I. HIGHLY VOLATILE <input type="checkbox"/> B. CORROSIVE <input type="checkbox"/> F. INFECTIOUS <input type="checkbox"/> J. EXPLOSIVE <input type="checkbox"/> C. RADIOACTIVE <input type="checkbox"/> G. FLAMMABLE <input type="checkbox"/> K. REACTIVE <input checked="" type="checkbox"/> D. PERSISTENT <input type="checkbox"/> H. IGNITABLE <input type="checkbox"/> L. INCOMPATIBLE <input type="checkbox"/> M. NOT APPLICABLE	
<b>III. WASTE TYPE</b>					
CATEGORY	SUBSTANCE NAME	01 GROSS AMOUNT	02 UNIT OF MEASURE	03 COMMENTS	
SLU	SLUDGE				
OLW	OILY WASTE				
SOL	SOLVENTS				
PSD	PESTICIDES				
OCC	OTHER ORGANIC CHEMICALS				
IOC	INORGANIC CHEMICALS	Elevated arsenic, sodium, cyanide. <sup>2</sup>			
ACD	ACIDS				
BAS	BASES				
MES	HEAVY METALS	Heavy metals in tailings material, at least 2 million tons of tailings.			
<b>IV. HAZARDOUS SUBSTANCES</b> <i>(See Appendix for most frequently cited CAS Numbers)</i>					
01 CATEGORY	02 SUBSTANCE NAME	03 CAS NUMBER	04 STORAGE/DISPOSAL METHOD	05 CONCENTRATION	06 MEASURE OF CONCENTRATION
IOC	Arsenic	999	Surface impoundment	1650	ug/g *
MES	Cadmium	999	(tailings)	56	ug/g
MES	Copper	999	"	435	ug/g
MES	Lead	999	"	538	ug/g
MES	Manganese	999	"	2280	ug/g
MES	Mercury	999	"	1.24	ug/g
MES	Nickel	7440-02-0	"	23	ug/g
MES	Silver	999	"	21	ug/g
IOC	Sodium	999	"	2998	ug/g
MES	Zinc	999	"	5353	ug/g
IOC	Cyanide	999	"	5.2	ug/g
* Concentration figured are averages of 4 surface tailings samples (RT-SO-4,5,6 & 7). Total metals. <sup>2</sup>					
<b>V. FEEDSTOCKS</b> <i>(See Appendix for CAS Numbers)</i>					
CATEGORY	01 FEEDSTOCK NAME	02 CAS NUMBER	CATEGORY	01 FEEDSTOCK NAME	02 CAS NUMBER
FDS	none		FDS		
FDS			FDS		
FDS			FDS		
FDS			FDS		
<b>VI. SOURCES OF INFORMATION</b> <i>(Cite specific references, e.g., state files, sample analysis, reports)</i>					
<sup>1</sup> Memo to File; J. Holcomb; 7/12/85. <sup>2</sup> Analytical Results Report for Richardson Flat Tailings; Ecology and Environment, Inc. (E&E); 10/25/85; TDD R8-8508-07.					



**POTENTIAL HAZARDOUS WASTE SITE  
SITE INSPECTION REPORT  
PART 2 - WASTE INFORMATION**

## I. IDENTIFICATION

01 STATE	02 SITE NUMBER
UT	D980952840

## II. WASTE STATES, QUANTITIES, AND CHARACTERISTICS

<b>01 PHYSICAL STATES</b> (Check all that apply) <div> <input type="checkbox"/> A SOLID           <input type="checkbox"/> E SLURRY         </div> <div> <input type="checkbox"/> B POWDER, FINES           <input type="checkbox"/> F LIQUID         </div> <div> <input type="checkbox"/> C SLUDGE           <input type="checkbox"/> G GAS         </div> <div> <input type="checkbox"/> D OTHER _____          (Specify)       </div>	<b>02 WASTE QUANTITY AT SITE</b> (Measures of waste quantities must be independent) <div>           TONS _____         </div> <div>           CUBIC YARDS _____         </div> <div>           NO. OF DRUMS _____         </div>	<b>03 WASTE CHARACTERISTICS</b> (Check all that apply) <div> <input type="checkbox"/> A TOXIC           <input type="checkbox"/> E SOLUBLE           <input type="checkbox"/> I HIGHLY VOLATILE         </div> <div> <input type="checkbox"/> B CORROSIVE           <input type="checkbox"/> F INFECTIOUS           <input type="checkbox"/> J EXPLOSIVE         </div> <div> <input type="checkbox"/> C RADIOACTIVE           <input type="checkbox"/> G FLAMMABLE           <input type="checkbox"/> K REACTIVE         </div> <div> <input type="checkbox"/> D PERSISTENT           <input type="checkbox"/> H IGNITABLE           <input type="checkbox"/> L INCOMPATIBLE         </div> <div> <input type="checkbox"/> M NOT APPLICABLE         </div>
---	---	---

### III. WASTE TYPE

CATEGORY	SUBSTANCE NAME	01 GROSS AMOUNT	02 UNIT OF MEASURE	03 COMMENTS
SLU	SLUDGE			
OLW	OILY WASTE			
SOL	SOLVENTS			
PSD	PESTICIDES			
OCC	OTHER ORGANIC CHEMICALS			
IOC	INORGANIC CHEMICALS			
ACD	ACIDS			
BAS	BASES			
MES	HEAVY METALS			

#### IV. HAZARDOUS SUBSTANCES (See Appendix for most frequently cited CAS Numbers)

[illegible]

## V. FEEDSTOCKS (See Appendix for CAS Numbers)

CATEGORY	01 FEEDSTOCK NAME	02 CAS NUMBER	CATEGORY	01 FEEDSTOCK NAME	02 CAS NUMBER
FDS			FDS		
FDS			FDS		
FDS			FDS		
FDS			FDS		

## VI. SOURCES OF INFORMATION (Cite specific references, e.g., state files, sample analysis reports)

<sup>3</sup> Analytical Results Report of Air Sampling at Richardson Flat; E&E FIT; 9/19/86; TDD R8-8608-05, E&E Files.





# POTENTIAL HAZARDOUS WASTE SITE SITE INSPECTION REPORT

## PART 3 - DESCRIPTION OF HAZARDOUS CONDITIONS AND INCIDENTS

### I. IDENTIFICATION

01 STATE	02 SITE NUMBER
UT	D980952840

### II. HAZARDOUS CONDITIONS AND INCIDENTS

01 <input checked="" type="checkbox"/> A. GROUNDWATER CONTAMINATION	02 <input type="checkbox"/> OBSERVED (DATE: 8/2/85)	<input type="checkbox"/> POTENTIAL	<input checked="" type="checkbox"/> ALLEGED
03 POPULATION POTENTIALLY AFFECTED: 8	04 NARRATIVE DESCRIPTION		
Ground water samples from UPCM wells (RF-GW-2, RF-GW-3) were collected and analyzed. Dissolved metals analyses revealed elevated levels of arsenic, cobalt, iron, manganese, and zinc. Two domestic wells (210' and 222' deep) have been identified within one mile of the site. <sup>4</sup> The best information available <sup>5</sup> indicates the wells are completed in Tertiary volcanic rock composed primarily of andesitic pyroclastics. Whether water-bearing units of unconsolidated deposits are hydraulically connected to underlying water-bearing unit of Tertiary origin is not known.			
01 <input checked="" type="checkbox"/> B. SURFACE WATER CONTAMINATION	02 <input checked="" type="checkbox"/> OBSERVED (DATE: 6/20/85)	<input type="checkbox"/> POTENTIAL	<input type="checkbox"/> ALLEGED
03 POPULATION POTENTIALLY AFFECTED: 414	04 NARRATIVE DESCRIPTION		
Surface water samples from Silver Creek, collected downgradient of the site, contained elevated levels of lead. RT-SW-3 (downgradient) contained 1985 ug/l lead as compared to RT-SW-1 (upgradient) containing 147 ug/l lead. Arsenic levels were also elevated. Water diverted from Silver Creek is used for pasture-land irrigation (276 acres) within 3-stream miles of the site. <sup>6,7</sup>			
01 <input checked="" type="checkbox"/> C. CONTAMINATION OF AIR	02 <input checked="" type="checkbox"/> OBSERVED (DATE: 7/7/86)	<input type="checkbox"/> POTENTIAL	<input type="checkbox"/> ALLEGED
03 POPULATION POTENTIALLY AFFECTED: 4500	04 NARRATIVE DESCRIPTION		
Hi-volume air sampling performed on July 7-14, 1986 verified the release of inorganic contaminants to the air route. A 100 fold increase in airborne lead concentration was detected when comparing upwind versus downwind sampling stations. Values for arsenic, cadmium and zinc are also highly elevated over the background samples. <sup>3</sup> Population residing within a 4-mile radius is approximately 4500. <sup>8</sup>			
01 <input type="checkbox"/> D. FIRE/EXPLOSIVE CONDITIONS	02 <input type="checkbox"/> OBSERVED (DATE: )	<input type="checkbox"/> POTENTIAL	<input type="checkbox"/> ALLEGED
03 POPULATION POTENTIALLY AFFECTED: 0	04 NARRATIVE DESCRIPTION		
No recorded history -- fire and explosive conditions do not exist at the site.			
01 <input checked="" type="checkbox"/> E. DIRECT CONTACT	02 <input type="checkbox"/> OBSERVED (DATE: )	<input checked="" type="checkbox"/> POTENTIAL	<input type="checkbox"/> ALLEGED
03 POPULATION POTENTIALLY AFFECTED: 4500	04 NARRATIVE DESCRIPTION		
The site is not secured from public access or access by domestic livestock. On June 19 and 20, vehicles were observed driving near the tailings area along the access road. Sheep and cattle were observed walking on the tailings on June 19 and 20, 1985.			
01 <input type="checkbox"/> F. CONTAMINATION OF SOIL	02 <input type="checkbox"/> OBSERVED (DATE: 8/2/85)	<input type="checkbox"/> POTENTIAL	<input checked="" type="checkbox"/> ALLEGED
03 AREA POTENTIALLY AFFECTED: 640 (Acres)	04 NARRATIVE DESCRIPTION		
Soil beneath the the tailings (RF-SS-6) contains elevated concentrations of antimony, arsenic, cadmium, copper, lead, magnesium, mercury, silver, sodium and zinc. Off site surface soil (RT-SO-1) contained elevated levels of arsenic, cadmium, lead, mercury and zinc probably due to wind deposition. <sup>2</sup>			
01 <input checked="" type="checkbox"/> G. DRINKING WATER CONTAMINATION	02 <input type="checkbox"/> OBSERVED (DATE: )	<input checked="" type="checkbox"/> POTENTIAL	<input type="checkbox"/> ALLEGED
03 POPULATION POTENTIALLY AFFECTED: 8	04 NARRATIVE DESCRIPTION		
Two domestic wells are located within one mile of the tailings. <sup>4</sup> Surface water from Silver Creek is not used for drinking water. <sup>9</sup>			
01 <input checked="" type="checkbox"/> H. WORKER EXPOSURE/INJURY	02 <input type="checkbox"/> OBSERVED (DATE: )	<input checked="" type="checkbox"/> POTENTIAL	<input type="checkbox"/> ALLEGED
03 WORKERS POTENTIALLY AFFECTED: 5	04 NARRATIVE DESCRIPTION		
The tailings are being removed by Mr. Ray Wortley to be used as backfill for sewer lines and road base. In addition, FIT members observed heavy equipment operators dumping what appeared to be native soil on the tailings area. Observations were made on June 19 and 20, 1985.			
01 <input checked="" type="checkbox"/> I. POPULATION EXPOSURE/INJURY	02 <input type="checkbox"/> OBSERVED (DATE: )	<input checked="" type="checkbox"/> POTENTIAL	<input type="checkbox"/> ALLEGED
03 POPULATION POTENTIALLY AFFECTED: 4500	04 NARRATIVE DESCRIPTION		
No recorded history of population exposure or injury, however, the site is not secured from public access or domestic livestock grazing. Population exposure of concern include airborne contaminants, food chain contamination associated with the surface water route, and threat to domestic wells.			



POTENTIAL HAZARDOUS WASTE SITE  
SITE INSPECTION REPORT  
PART 3 - DESCRIPTION OF HAZARDOUS CONDITIONS AND INCIDENTS

I. IDENTIFICATION  
01 STATE 02 SITE NUMBER  
UT D980952840

II. HAZARDOUS CONDITIONS AND INCIDENTS (Continued)

01 ☒ J. DAMAGE TO FLORA 02 ☒ OBSERVED (DATE: 6/19/85 ) ☐ POTENTIAL ☐ ALLEGED  
04 NARRATIVE DESCRIPTION

Peripheral tailings support vegetation including Juncus sp., Salix sp. and Verbascum thapsus, but most of the tailings are denuded due to high levels of soluble salts and metals.

01 ☒ K. DAMAGE TO FAUNA 02 ☐ OBSERVED (DATE: \_\_\_\_\_) ☒ POTENTIAL ☐ ALLEGED  
04 NARRATIVE DESCRIPTION (Include name(s) of species)

No apparent damage to area fauna. Two muskrats were observed swimming in the drainage ditch on site (near RT-SW-4). Fish in Silver Creek could potentially be affected by lead and arsenic released from the tailings.

01 ☒ L. CONTAMINATION OF FOOD CHAIN 02 ☐ OBSERVED (DATE: \_\_\_\_\_) ☒ POTENTIAL ☐ ALLEGED  
04 NARRATIVE DESCRIPTION

The possibility exists for metals to move through the food chain 1) by domestic livestock grazing in areas where soil is contaminated; 2) by heavy metal concentration in local fish populations.

01 ☒ M. UNSTABLE CONTAINMENT OF WASTES 02 ☐ OBSERVED (DATE: \_\_\_\_\_) ☐ POTENTIAL ☐ ALLEGED  
(Spills, Runoff, Standing liquids, Leaking drums)  
03 POPULATION POTENTIALLY AFFECTED: 4500 04 NARRATIVE DESCRIPTION

Tailings ponds are uncovered and therefore susceptible to gusty winds which carry fine-grain tailings material off-site. A dam constructed at the northwest end of the tailings prevents mass movement of solid material off-site.

01 ☒ N. DAMAGE TO OFFSITE PROPERTY 02 ☐ OBSERVED (DATE: \_\_\_\_\_) ☒ POTENTIAL ☐ ALLEGED  
04 NARRATIVE DESCRIPTION

The potential exists for damage to off-site property because the tailings material is allegedly being used as sewer line backfill and road base in the Park City area.

01 ☒ O. CONTAMINATION OF SEWERS, STORM DRAINS, WWTPs 02 ☐ OBSERVED (DATE: \_\_\_\_\_) ☒ POTENTIAL ☐ ALLEGED  
04 NARRATIVE DESCRIPTION

If tailings material is being used as sewer line backfill, the potential exists for sewer contamination by metals.

01 ☐ P. ILLEGAL/UNAUTHORIZED DUMPING 02 ☐ OBSERVED (DATE: \_\_\_\_\_) ☐ POTENTIAL ☐ ALLEGED  
04 NARRATIVE DESCRIPTION

Dumping of native soil on to the tailings was observed by FTT members, but is under the supervision of United Park City Mines.

05 DESCRIPTION OF ANY OTHER KNOWN, POTENTIAL, OR ALLEGED HAZARDS

No other hazards are known.

III. TOTAL POPULATION POTENTIALLY AFFECTED: 4500

IV. COMMENTS

V. SOURCES OF INFORMATION (Cite specific references, e. g., state laws, sample analysis, reports)

- 4 Well Logs (#34833 and #A-34356).
- 5 Water Resources of the Heber-Kamas - Park City Area North-Central Utah; Tech. Publ. No. 27.
- 6 Telecon; S. Kennedy to J. Anderson; 7/18/85.
- 7 Weber River Decree and Corresponding Plat.

- 8 Telecon; S. Kennedy to J. Harrington; 9/4/85.
- 9 Telecon; S. Kennedy to L. Mize; 7/17/85.

<b>POTENTIAL HAZARDOUS WASTE SITE SITE INSPECTION</b>				<b>I. IDENTIFICATION</b>	
<b>PART 4 - PERMIT AND DESCRIPTIVE INFORMATION</b>				<b>01 STATE</b> UT	<b>02 SITE NUMBER</b> D980952840
<b>II. PERMIT INFORMATION</b>					
<b>01 TYPE OF PERMIT ISSUED</b> (Check all that apply)	<b>02 PERMIT NUMBER</b>	<b>03 DATE ISSUED</b>	<b>04 EXPIRATION DATE</b>	<b>05 COMMENTS</b>	
<input type="checkbox"/> A. NPDES					
<input type="checkbox"/> B. UIC					
<input type="checkbox"/> C. AIR					
<input type="checkbox"/> D. RCRA					
<input type="checkbox"/> E. RCRA INTERIM STATUS					
<input type="checkbox"/> F. SPCC PLAN					
<input type="checkbox"/> G. STATE (Specify)					
<input type="checkbox"/> H. LOCAL (Specify)					
<input type="checkbox"/> I. OTHER (Specify)					
<input checked="" type="checkbox"/> J. NONE					
<b>III. SITE DESCRIPTION</b>					
<b>01 STORAGE/DISPOSAL</b> (Check all that apply)	<b>02 AMOUNT</b>	<b>03 UNIT OF MEASURE</b>	<b>04 TREATMENT</b> (Check all that apply)	<b>05 OTHER</b>	
<input checked="" type="checkbox"/> A. SURFACE IMPOUNDMENT <input type="checkbox"/> B. PILES <input type="checkbox"/> C. DRUMS, ABOVE GROUND <input type="checkbox"/> D. TANK, ABOVE GROUND <input type="checkbox"/> E. TANK, BELOW GROUND <input type="checkbox"/> F. LANDFILL <input type="checkbox"/> G. LANDFARM <input type="checkbox"/> H. OPEN DUMP <input type="checkbox"/> I. OTHER (Specify)	<u>2 million</u> _____ _____ _____ _____ _____ _____ _____	<u>TONS</u> _____ _____ _____ _____ _____ _____ _____	<input type="checkbox"/> A. INCINERATION <input type="checkbox"/> B. UNDERGROUND INJECTION <input type="checkbox"/> C. CHEMICAL/PHYSICAL <input type="checkbox"/> D. BIOLOGICAL <input type="checkbox"/> E. WASTE OIL PROCESSING <input type="checkbox"/> F. SOLVENT RECOVERY <input type="checkbox"/> G. OTHER RECYCLING/RECOVERY <input type="checkbox"/> H. OTHER (Specify)	<input type="checkbox"/> A. BUILDINGS ON SITE  <u>None</u> <b>06 AREA OF SITE</b> <u>160</u> (Acres)	
<b>07 COMMENTS</b> Slurry, generated from milling activities, was piped to the Richardson Flat area and currently covers approximately 160 acres. The metal sulfide, and carbonate-containing tailings material is presently a solid matrix. An ephemeral pond overlies a portion of the tailings.					
<b>IV. CONTAINMENT</b>					
<b>01 CONTAINMENT OF WASTES</b> (Check one) <input type="checkbox"/> A. ADEQUATE, SECURE <input type="checkbox"/> B. MODERATE <input checked="" type="checkbox"/> C. INADEQUATE, POOR <input type="checkbox"/> D. INSECURE, UNSOUND, DANGEROUS					
<b>02 DESCRIPTION OF DRUMS, DIKING, LINERS, BARRIERS, ETC.</b> A dam at the northwest extension of the tailings is the only form of artificial containment on site. The tailings material is uncovered, and no underlying liner is present.					
<b>V. ACCESSIBILITY</b>					
<b>01 WASTE EASILY ACCESSIBLE:</b> <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO <b>02 COMMENTS</b> The site is not secured from public access or domestic livestock grazing.					
<b>VI. SOURCES OF INFORMATION</b> (Cite specific references, e.g. State files, sampling analysis, reports)					
See pages 2, 2A and 4.					



**POTENTIAL HAZARDOUS WASTE SITE  
SITE INSPECTION REPORT  
PART 5 - WATER, DEMOGRAPHIC, AND ENVIRONMENTAL DATA**

**I. IDENTIFICATION**

01 STATE: 02 SITE NUMBER  
UT D980952840

**II. DRINKING WATER SUPPLY**

01 TYPE OF DRINKING SUPPLY (Check as applicable)		02 STATUS			03 DISTANCE TO SITE
	SURFACE	WELL	ENDANGERED	AFFECTED	MONITORED
COMMUNITY	A. <input type="checkbox"/>	B. <input type="checkbox"/>	A. <input checked="" type="checkbox"/>	B. <input type="checkbox"/>	C. <input type="checkbox"/>
NON-COMMUNITY	C. <input type="checkbox"/>	D. <input checked="" type="checkbox"/>	D. <input type="checkbox"/>	E. <input type="checkbox"/>	F. <input type="checkbox"/>
					A. <u>3/4</u> (mi)
					B. _____ (mi)

**III. GROUNDWATER**

## 01 GROUNDWATER USE IN VICINITY (Check one)

- ☐ A. ONLY SOURCE FOR DRINKING    ☒ B. DRINKING  
(Other sources available)  
COMMERCIAL, INDUSTRIAL, IRRIGATION  
(No other water sources available)
- ☐ C. COMMERCIAL, INDUSTRIAL, IRRIGATION  
(Limited other sources available)
- ☐ D. NOT USED, UNUSEABLE

02 POPULATION SERVED BY GROUND WATER 803 DISTANCE TO NEAREST DRINKING WATER WELL 3/4 (mi)

04 DEPTH TO GROUNDWATER

50<sup>4</sup> (ft)

05 DIRECTION OF GROUNDWATER FLOW

north06 DEPTH TO AQUIFER  
OF CONCERN50 (ft)07 POTENTIAL YIELD  
OF AQUIFERunknown (gpd)

08 SOLE SOURCE AQUIFER

☐ YES ☒ NO

## 09 DESCRIPTION OF WELLS (including usage, depth, and location relative to population and buildings)

According to State records, two private domestic wells are located approximately 4000 feet southwest of the site. One of the wells is 210 feet deep with a static water level of 42 feet. The second well is 222 feet deep with a static water level of 55 feet.

## 10 RECHARGE AREA

☒ YES    COMMENTS  
☐ NO

## 11 DISCHARGE AREA

☐ YES    COMMENTS  
☒ NO

**IV. SURFACE WATER**

## 01 SURFACE WATER USE (Check one)

- ☐ A. RESERVOIR, RECREATION  
DRINKING WATER SOURCE
- ☒ B. IRRIGATION, ECONOMICALLY  
IMPORTANT RESOURCES
- ☐ C. COMMERCIAL, INDUSTRIAL
- ☐ D. NOT CURRENTLY USED

## 02 AFFECTED/POTENTIALLY AFFECTED BODIES OF WATER

NAME:

AFFECTED

DISTANCE TO SITE

Silver Creek☒approx. 300' (mi)GM Pace Ditch☐approx. 400' (mi)☐

\_\_\_\_\_ (mi)

**V. DEMOGRAPHIC AND PROPERTY INFORMATION**

## 01 TOTAL POPULATION WITHIN

ONE (1) MILE OF SITE

A. 0

NO. OF PERSONS

TWO (2) MILES OF SITE

B. 8

NO. OF PERSONS

THREE (3) MILES OF SITE

C. 95

NO. OF PERSONS

(house count from 1955)

## 02 DISTANCE TO NEAREST POPULATION

1.9 (mi)

## 03 NUMBER OF BUILDINGS WITHIN TWO (2) MILES OF SITE

2

## 04 DISTANCE TO NEAREST OFF-SITE BUILDING

1.9 (mi)

## 05 POPULATION WITHIN VICINITY OF SITE (Provide narrative description of nature of population within vicinity of site, e.g., rural, village, densely populated urban area)

Park City, Utah is approximately 2.5 miles southwest of the site. The population fluctuates from 4500 to 10,000 during the winter ski season. The year-round permanent population is approximately 4500.



POTENTIAL HAZARDOUS WASTE SITE  
SITE INSPECTION REPORT  
PART 5 - WATER, DEMOGRAPHIC, AND ENVIRONMENTAL DATA

I. IDENTIFICATION  
01 STATE UT 02 SITE NUMBER D980952840

VI. ENVIRONMENTAL INFORMATION

01 PERMEABILITY OF UNSATURATED ZONE (Check one)

☐ A.  $10^{-6} - 10^{-8}$  cm/sec ☐ B.  $10^{-4} - 10^{-6}$  cm/sec ☐ C.  $10^{-4} - 10^{-3}$  cm/sec ☒ D. GREATER THAN  $10^{-3}$  cm/sec

02 PERMEABILITY OF BEDROCK (Check one)

☐ A. IMPERMEABLE (Less than  $10^{-6}$  cm/sec) ☒ B. RELATIVELY IMPERMEABLE ( $10^{-4} - 10^{-6}$  cm/sec) ☐ C. RELATIVELY PERMEABLE ( $10^{-2} - 10^{-4}$  cm/sec) ☐ D. VERY PERMEABLE (Greater than  $10^{-2}$  cm/sec)

03 DEPTH TO BEDROCK

25 (ft)

04 DEPTH OF CONTAMINATED SOIL ZONE

unknown (ft)

05 SOIL pH

7.74

06 NET PRECIPITATION

-12 (in)

07 ONE YEAR 24 HOUR RAINFALL

1.25 (in)

08 SLOPE

SITE SLOPE 0-5 %

DIRECTION OF SITE SLOPE

north northeast

TERRAIN AVERAGE SLOPE

0-5 %

09 FLOOD POTENTIAL

SITE IS IN 100 YEAR FLOODPLAIN

10

☐ SITE IS ON BARRIER ISLAND, COASTAL HIGH HAZARD AREA, RIVERINE FLOODWAY

11 DISTANCE TO WETLANDS (5 acre minimum)

ESTUARINE

OTHER (freshwater)

A. N/A (mi)

B. 0.25 (mi)

12 DISTANCE TO CRITICAL HABITAT (of endangered species)

N/A (mi)

ENDANGERED SPECIES: no endangered species in Park<sup>10</sup> City area.

13 LAND USE IN VICINITY

DISTANCE TO:

COMMERCIAL/INDUSTRIAL

A. 1.5 (mi)

RESIDENTIAL AREAS; NATIONAL/STATE PARKS,  
FORESTS, OR WILDLIFE RESERVES

6 mi. National Forest

1.5 mi. Residential Area

B. 2 (mi)

AGRICULTURAL LANDS  
PRIME AG LAND

AG LAND

adjacent to site

C. N/A (mi) D. <1 mile (mi)  
pastureland, hay


14 DESCRIPTION OF SITE IN RELATION TO SURROUNDING TOPOGRAPHY

Richardson Flat is a natural depression at the base of the Wasatch Range, adjacent to Silver Creek.

VII. SOURCES OF INFORMATION (Cite specific references, e.g., state files, sample analysis, reports)

<sup>10</sup> Telecon; S. Kennedy to Larry England; 9/4/85.

Ref 2

		<b>POTENTIAL HAZARDOUS WASTE SITE SITE INSPECTION REPORT</b>		<b>I. IDENTIFICATION</b>	
		<b>PART 6 - SAMPLE AND FIELD INFORMATION</b>		<b>01 STATE</b> UT	<b>02 SITE NUMBER</b> D980952840
<b>II. SAMPLES TAKEN</b>					
SAMPLE TYPE	01 NUMBER OF SAMPLES TAKEN	02 SAMPLES SENT TO		03 ESTIMATED DATE RESULTS AVAILABLE	
GROUNDWATER	3	EPA Region 8 Laboratory, Lakewood, CO		Rec'd 10/16/85	
SURFACE WATER	6	" " "		Rec'd 7/12/85	
Tailings Surface WASTE Subsurface	4 4	EPA Region 8 Lab & Versar Inc. Springfield VA		Rec'd 7/12/85 Rec'd 10/16/85	
AIR (High-vol)	29	Hittman-Ebasco, Columbia, MD		8/86	
RUNOFF					
SPILL					
SOIL Surface Subsurface	1 2	EPA Region 8 Lab, Lakewood, CO EPA Region 8 Lab & Versar, Inc. Springfield VA		Rec'd 7/12/85 Rec'd 10/16/85	
VEGETATION					
OTHER					
<b>III. FIELD MEASUREMENTS TAKEN</b>					
01 TYPE	02 COMMENTS				
pH	Ground water samples ranged from 6.43 to 6.89 Surface water samples (Silver Cr. tailings ditch) ranged from 7.26 to 7.54				
temperature	Ground water 9.5°C to 11°C Surface water 19°C to 20°C				
conductivity	Ground water 350 to 1450 umhos/cm Surface water 550 to 1400 umhos/cm				
volatile organics (HN <sub>1</sub> )	No readings greater than background				
radiation	No readings greater than background				
<b>IV. PHOTOGRAPHS AND MAPS</b>					
01 TYPE <input checked="" type="checkbox"/> GROUND <input type="checkbox"/> AERIAL		02 IN CUSTODY OF <u>Ecology and Environment FIT VIII Files</u> <small>(Name of organization or individual)</small>			
03 MAPS <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO		04 LOCATION OF MAPS <u>Ecology and Environment FIT VIII Files</u>			
<b>V. OTHER FIELD DATA COLLECTED</b> <small>(Provide narrative description)</small>					
<b>VI. SOURCES OF INFORMATION</b> <small>(Cite specific references, e.g., state files, sample analysis reports)</small>					
See pages 2, 2A, 4 and 7.					



**POTENTIAL HAZARDOUS WASTE SITE  
SITE INSPECTION REPORT  
PART 7 - OWNER INFORMATION**

**I. IDENTIFICATION**

01 STATE 02 SITE NUMBER  
UT D980952840

II. CURRENT OWNER(S)				PARENT COMPANY (If applicable)			
01 NAME United Park City Mines Co.		02 D+B NUMBER		06 NAME N/A		09 D+B NUMBER	
03 STREET ADDRESS (P.O. Box, RFD #, etc.) 309 Kearns Bldg.		04 SIC CODE		10 STREET ADDRESS (P.O. Box, RFD #, etc.)		11 SIC CODE	
05 CITY Salt Lake City	06 STATE UT	07 ZIP CODE 84101		12 CITY	13 STATE	14 ZIP CODE	
01 NAME		02 D+B NUMBER		06 NAME		09 D+B NUMBER	
03 STREET ADDRESS (P.O. Box, RFD #, etc.)		04 SIC CODE		10 STREET ADDRESS (P.O. Box, RFD #, etc.)		11 SIC CODE	
05 CITY	06 STATE	07 ZIP CODE		12 CITY	13 STATE	14 ZIP CODE	
01 NAME		02 D+B NUMBER		06 NAME		09 D+B NUMBER	
03 STREET ADDRESS (P.O. Box, RFD #, etc.)		04 SIC CODE		10 STREET ADDRESS (P.O. Box, RFD #, etc.)		11 SIC CODE	
05 CITY	06 STATE	07 ZIP CODE		12 CITY	13 STATE	14 ZIP CODE	
01 NAME		02 D+B NUMBER		06 NAME		09 D+B NUMBER	
03 STREET ADDRESS (P.O. Box, RFD #, etc.)		04 SIC CODE		10 STREET ADDRESS (P.O. Box, RFD #, etc.)		11 SIC CODE	
05 CITY	06 STATE	07 ZIP CODE		12 CITY	13 STATE	14 ZIP CODE	
01 NAME		02 D+B NUMBER		06 NAME		09 D+B NUMBER	
03 STREET ADDRESS (P.O. Box, RFD #, etc.)		04 SIC CODE		10 STREET ADDRESS (P.O. Box, RFD #, etc.)		11 SIC CODE	
05 CITY	06 STATE	07 ZIP CODE		12 CITY	13 STATE	14 ZIP CODE	
III. PREVIOUS OWNER(S) (List most recent first)				IV. REALTY OWNER(S) (If applicable - list most recent first)			
01 NAME		02 D+B NUMBER		01 NAME		02 D+B NUMBER	
03 STREET ADDRESS (P.O. Box, RFD #, etc.)		04 SIC CODE		03 STREET ADDRESS (P.O. Box, RFD #, etc.)		04 SIC CODE	
05 CITY	06 STATE	07 ZIP CODE		05 CITY	06 STATE	07 ZIP CODE	
01 NAME		02 D+B NUMBER		01 NAME		02 D+B NUMBER	
03 STREET ADDRESS (P.O. Box, RFD #, etc.)		04 SIC CODE		03 STREET ADDRESS (P.O. Box, RFD #, etc.)		04 SIC CODE	
05 CITY	06 STATE	07 ZIP CODE		05 CITY	06 STATE	07 ZIP CODE	
01 NAME		02 D+B NUMBER		01 NAME		02 D+B NUMBER	
03 STREET ADDRESS (P.O. Box, RFD #, etc.)		04 SIC CODE		03 STREET ADDRESS (P.O. Box, RFD #, etc.)		04 SIC CODE	
05 CITY	06 STATE	07 ZIP CODE		05 CITY	06 STATE	07 ZIP CODE	
01 NAME		02 D+B NUMBER		01 NAME		02 D+B NUMBER	
03 STREET ADDRESS (P.O. Box, RFD #, etc.)		04 SIC CODE		03 STREET ADDRESS (P.O. Box, RFD #, etc.)		04 SIC CODE	
05 CITY	06 STATE	07 ZIP CODE		05 CITY	06 STATE	07 ZIP CODE	

**V. SOURCES OF INFORMATION** (Cite specific references, e.g., State files, sample analysis, reports)

See pages 2, 2A, 4 and 7.



**POTENTIAL HAZARDOUS WASTE SITE  
SITE INSPECTION REPORT  
PART 8 - OPERATOR INFORMATION**

**I. IDENTIFICATION**

01 STATE UT	02 SITE NUMBER D980952840
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**II. CURRENT OPERATOR** (Provide if different from owner)**OPERATOR'S PARENT COMPANY** (If applicable)

01 NAME United Park City Mines, Co		02 D+B NUMBER		10 NAME N/A		11 D+B NUMBER	
03 STREET ADDRESS (P.O. Box, RFD #, etc.) 309 Kearns Bldg.		04 SIC CODE		12 STREET ADDRESS (P.O. Box, RFD #, etc.)		13 SIC CODE	
05 CITY Salt Lake City	06 STATE UT	07 ZIP CODE 84101		14 CITY	15 STATE	16 ZIP CODE	
08 YEARS OF OPERATION	09 NAME OF OWNER same as above.						

**III. PREVIOUS OPERATOR(S)** (List most recent first, provide only if different from owner)**PREVIOUS OPERATORS' PARENT COMPANIES** (If applicable)

01 NAME		02 D+B NUMBER		10 NAME		11 D+B NUMBER	
03 STREET ADDRESS (P.O. Box, RFD #, etc.)		04 SIC CODE		12 STREET ADDRESS (P.O. Box, RFD #, etc.)		13 SIC CODE	
05 CITY	06 STATE	07 ZIP CODE		14 CITY	15 STATE	16 ZIP CODE	
08 YEARS OF OPERATION	09 NAME OF OWNER DURING THIS PERIOD						

01 NAME		02 D+B NUMBER		10 NAME		11 D+B NUMBER	
03 STREET ADDRESS (P.O. Box, RFD #, etc.)		04 SIC CODE		12 STREET ADDRESS (P.O. Box, RFD #, etc.)		13 SIC CODE	
05 CITY	06 STATE	07 ZIP CODE		14 CITY	15 STATE	16 ZIP CODE	
08 YEARS OF OPERATION	09 NAME OF OWNER DURING THIS PERIOD						


  

01 NAME		02 D+B NUMBER		10 NAME		11 D+B NUMBER	
03 STREET ADDRESS (P.O. Box, RFD #, etc.)		04 SIC CODE		12 STREET ADDRESS (P.O. Box, RFD #, etc.)		13 SIC CODE	
05 CITY	06 STATE	07 ZIP CODE		14 CITY	15 STATE	16 ZIP CODE	
08 YEARS OF OPERATION	09 NAME OF OWNER DURING THIS PERIOD						


**IV. SOURCES OF INFORMATION** (Cite specific references, e.g., state files, sample analysis, reports)

See pages 2, 2A, 4 and 7.



 <div style="display: inline-block; vertical-align: middle; text-align: center;"> <b>POTENTIAL HAZARDOUS WASTE SITE SITE INSPECTION REPORT</b>  <b>PART 9 - GENERATOR/TRANSPORTER INFORMATION</b> </div>		<b>I. IDENTIFICATION</b> 01 STATE   02 SITE NUMBER UT   D980952840	
<b>II. ON-SITE GENERATOR</b>			
01 NAME None		02 D+B NUMBER	
03 STREET ADDRESS (P.O. Box, RFD #, etc.)		04 SIC CODE	
05 CITY	06 STATE	07 ZIP CODE	
<b>III. OFF-SITE GENERATOR(S)</b>			
01 NAME None		02 D+B NUMBER	
03 STREET ADDRESS (P.O. Box, RFD #, etc.)		04 SIC CODE	
05 CITY	06 STATE	07 ZIP CODE	
01 NAME		02 D+B NUMBER	
03 STREET ADDRESS (P.O. Box, RFD #, etc.)		04 SIC CODE	
05 CITY	06 STATE	07 ZIP CODE	
01 NAME		02 D+B NUMBER	
03 STREET ADDRESS (P.O. Box, RFD #, etc.)		04 SIC CODE	
05 CITY	06 STATE	07 ZIP CODE	
<b>IV. TRANSPORTER(S)</b>			
01 NAME Mr. Ray Wortley *		02 D+B NUMBER	
03 STREET ADDRESS (P.O. Box, RFD #, etc.) unknown		04 SIC CODE	
05 CITY	06 STATE	07 ZIP CODE	
01 NAME		02 D+B NUMBER	
03 STREET ADDRESS (P.O. Box, RFD #, etc.)		04 SIC CODE	
05 CITY	06 STATE	07 ZIP CODE	
<b>V. SOURCES OF INFORMATION</b> (Cite specific references, e.g., state files, sample analysis, reports)			
<p>* Allegedly removes tailings material for use as sewer line backfill and roadbase.</p> <p>11 Site Inspection Report, Richardson Flat Tailings; Utah Bureau of Solid and Hazardous Waste; 9/4/84; in E&amp;E files under TDD R8-8504-23.</p>			

		<b>POTENTIAL HAZARDOUS WASTE SITE SITE INSPECTION REPORT PART 10 - PAST RESPONSE ACTIVITIES</b>		<b>I. IDENTIFICATION</b>	
				01 STATE UT	02 SITE NUMBER D980952840
<b>II. PAST RESPONSE ACTIVITIES</b>					
01 <input type="checkbox"/> A. WATER SUPPLY CLOSED 04 DESCRIPTION No recorded history.	02 DATE _____	03 AGENCY _____			
01 <input type="checkbox"/> B. TEMPORARY WATER SUPPLY PROVIDED 04 DESCRIPTION None observed or reported.	02 DATE _____	03 AGENCY _____			
01 <input type="checkbox"/> C. PERMANENT WATER SUPPLY PROVIDED 04 DESCRIPTION None observed or reported.	02 DATE _____	03 AGENCY _____			
01 <input type="checkbox"/> D. SPILLED MATERIAL REMOVED 04 DESCRIPTION None observed or reported.	02 DATE _____	03 AGENCY _____			
01 <input type="checkbox"/> E. CONTAMINATED SOIL REMOVED 04 DESCRIPTION None observed or reported.	02 DATE _____	03 AGENCY _____			
01 <input type="checkbox"/> F. WASTE REPACKAGED 04 DESCRIPTION None observed or reported.	02 DATE _____	03 AGENCY _____			
01 <input type="checkbox"/> G. WASTE DISPOSED ELSEWHERE 04 DESCRIPTION None observed or reported.	02 DATE _____	03 AGENCY _____			
01 <input type="checkbox"/> H. ON SITE BURIAL 04 DESCRIPTION None observed or reported.	02 DATE _____	03 AGENCY _____			
01 <input type="checkbox"/> I. IN SITU CHEMICAL TREATMENT 04 DESCRIPTION None observed or reported.	02 DATE _____	03 AGENCY _____			
01 <input type="checkbox"/> J. IN SITU BIOLOGICAL TREATMENT 04 DESCRIPTION None observed or reported.	02 DATE _____	03 AGENCY _____			
01 <input type="checkbox"/> K. IN SITU PHYSICAL TREATMENT 04 DESCRIPTION None observed or reported.	02 DATE _____	03 AGENCY _____			
01 <input type="checkbox"/> L. ENCAPSULATION 04 DESCRIPTION None observed or reported.	02 DATE _____	03 AGENCY _____			
01 <input type="checkbox"/> M. EMERGENCY WASTE TREATMENT 04 DESCRIPTION None observed or reported.	02 DATE _____	03 AGENCY _____			
01 <input type="checkbox"/> N. CUTOFF WALLS 04 DESCRIPTION None observed or reported.	02 DATE _____	03 AGENCY _____			
01 <input checked="" type="checkbox"/> O. EMERGENCY DIKING/SURFACE WATER DIVERSION 04 DESCRIPTION A dam was built at the northwestern extension of the tailings to contain the ponded water.	02 DATE _____	03 AGENCY _____			
01 <input type="checkbox"/> P. CUTOFF TRENCHES/SUMP 04 DESCRIPTION None observed or reported.	02 DATE _____	03 AGENCY _____			
01 <input type="checkbox"/> Q. SUBSURFACE CUTOFF WALL 04 DESCRIPTION None observed or reported.	02 DATE _____	03 AGENCY _____			

	<b>POTENTIAL HAZARDOUS WASTE SITE SITE INSPECTION REPORT PART 10 - PAST RESPONSE ACTIVITIES</b>		<b>I. IDENTIFICATION</b>	
			01 STATE UT	02 SITE NUMBER D980952840
<b>II. PAST RESPONSE ACTIVITIES</b> <i>(Continued)</i>				
<div style="display: flex; justify-content: space-between;"> <div style="width: 45%;">           01 <input type="checkbox"/> R. BARRIER WALLS CONSTRUCTED 04 DESCRIPTION None observed or reported.         </div> <div style="width: 20%;">           02 DATE _____         </div> <div style="width: 35%;">           03 AGENCY _____         </div> </div>				
<div style="display: flex; justify-content: space-between;"> <div style="width: 45%;">           01 <input type="checkbox"/> S. CAPPING/COVERING 04 DESCRIPTION None observed or reported.         </div> <div style="width: 20%;">           02 DATE _____         </div> <div style="width: 35%;">           03 AGENCY _____         </div> </div>				
<div style="display: flex; justify-content: space-between;"> <div style="width: 45%;">           01 <input type="checkbox"/> T. BULK TANKAGE REPAIRED 04 DESCRIPTION None observed or reported.         </div> <div style="width: 20%;">           02 DATE _____         </div> <div style="width: 35%;">           03 AGENCY _____         </div> </div>				
<div style="display: flex; justify-content: space-between;"> <div style="width: 45%;">           01 <input type="checkbox"/> U. GROUT CURTAIN CONSTRUCTED 04 DESCRIPTION None observed or reported.         </div> <div style="width: 20%;">           02 DATE _____         </div> <div style="width: 35%;">           03 AGENCY _____         </div> </div>				
<div style="display: flex; justify-content: space-between;"> <div style="width: 45%;">           01 <input type="checkbox"/> V. BOTTOM SEALED 04 DESCRIPTION None observed or reported.         </div> <div style="width: 20%;">           02 DATE _____         </div> <div style="width: 35%;">           03 AGENCY _____         </div> </div>				
<div style="display: flex; justify-content: space-between;"> <div style="width: 45%;">           01 <input type="checkbox"/> W. GAS CONTROL 04 DESCRIPTION None observed or reported.         </div> <div style="width: 20%;">           02 DATE _____         </div> <div style="width: 35%;">           03 AGENCY _____         </div> </div>				
<div style="display: flex; justify-content: space-between;"> <div style="width: 45%;">           01 <input type="checkbox"/> X. FIRE CONTROL 04 DESCRIPTION None observed or reported.         </div> <div style="width: 20%;">           02 DATE _____         </div> <div style="width: 35%;">           03 AGENCY _____         </div> </div>				
<div style="display: flex; justify-content: space-between;"> <div style="width: 45%;">           01 <input type="checkbox"/> Y. LEACHATE TREATMENT 04 DESCRIPTION None observed or reported.         </div> <div style="width: 20%;">           02 DATE _____         </div> <div style="width: 35%;">           03 AGENCY _____         </div> </div>				
<div style="display: flex; justify-content: space-between;"> <div style="width: 45%;">           01 <input type="checkbox"/> Z. AREA EVACUATED 04 DESCRIPTION None observed or reported.         </div> <div style="width: 20%;">           02 DATE _____         </div> <div style="width: 35%;">           03 AGENCY _____         </div> </div>				
<div style="display: flex; justify-content: space-between;"> <div style="width: 45%;">           01 <input type="checkbox"/> 1. ACCESS TO SITE RESTRICTED 04 DESCRIPTION None observed or reported.         </div> <div style="width: 20%;">           02 DATE _____         </div> <div style="width: 35%;">           03 AGENCY _____         </div> </div>				
<div style="display: flex; justify-content: space-between;"> <div style="width: 45%;">           01 <input type="checkbox"/> 2. POPULATION RELOCATED 04 DESCRIPTION None observed or reported.         </div> <div style="width: 20%;">           02 DATE _____         </div> <div style="width: 35%;">           03 AGENCY _____         </div> </div>				
<div style="display: flex; justify-content: space-between;"> <div style="width: 45%;">           01 <input type="checkbox"/> 3. OTHER REMEDIAL ACTIVITIES 04 DESCRIPTION None observed or reported.         </div> <div style="width: 20%;">           02 DATE _____         </div> <div style="width: 35%;">           03 AGENCY _____         </div> </div>				
<b>III. SOURCES OF INFORMATION</b> <i>(See specific references, e.g., state files, sample analysis, reports)</i>				
See pages 2, 2A, 4 and 7 and 11.				

14



POTENTIAL HAZARDOUS WASTE SITE  
SITE INSPECTION REPORT  
PART 11 - ENFORCEMENT INFORMATION

I. IDENTIFICATION

01 STATE	02 SITE NUMBER
UT	D980952840

II. ENFORCEMENT INFORMATION

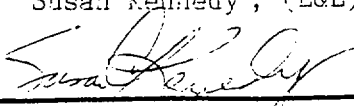
01 PAST REGULATORY/ENFORCEMENT ACTION ☐ YES ☒ NO

02 DESCRIPTION OF FEDERAL, STATE, LOCAL REGULATORY/ENFORCEMENT ACTION

- No agency enforcement action taken at this site.
- SI performed by State of Utah BSMW 12/21/84.
- SI performed by EPA FIT VIII, 6, 7 & 8/85.
- Air sampling performed by EPA FIT VIII, 7/7-14/86.

III. SOURCES OF INFORMATION (Cite specific references, e.g., state files, sample analysis, reports)

See pages 2, 2A, 4 and 7 and 11.

<b>RECORD OF COMMUNICATION</b>	<input checked="" type="checkbox"/> PHONE CALL <input type="checkbox"/> DISCUSSION <input type="checkbox"/> FIELD TRIP <input type="checkbox"/> CONFERENCE <input type="checkbox"/> OTHER (SPECIFY) (801) 649-9321 (Record of item checked above)	
<b>TO:</b> Jennifer Harrington Park City - Planning Div.	<b>FROM:</b> Susan Kennedy, (E&E) 	<b>DATE</b> 9/4/85 <b>TIME</b> 0930
<b>SUBJECT</b> Resident Population of Park City During Winter Months.		
<b>SUMMARY OF COMMUNICATION</b> Ms. Harrington provided the following information: <ul style="list-style-type: none"> <li>- The permanent year-round population of Park City is 4500.</li> <li>- Although as many as 10,000 (permanent population plus number of guest beds) people may stay in town during five to ten days of the peak winter season, this additional population is transient.</li> <li>- No information is available of the average winter population including permanent and transient.</li> </ul> <p>When asked if the winter population is higher than summer population due to support workers at restaurants, hotels, etc., Ms. Harrington stated the change is insignificant because an equal number of summer residents spend the winter months elsewhere.</p>		
<b>CONCLUSIONS, ACTION TAKEN OR REQUIRED</b> <p>For HRS purposes, the population of Park City is 4500 which includes transient workers, but excludes travelers passing through the area.</p>		
<b>INFORMATION COPIES</b> <b>TO:</b>		

<b>RECORD OF COMMUNICATION</b>	<input type="checkbox"/> PHONE CALL <input checked="" type="checkbox"/> DISCUSSION <input type="checkbox"/> FIELD TRIP <input type="checkbox"/> CONFERENCE <input type="checkbox"/> OTHER (SPECIFY)	
	(Record of item checked above)	
<b>TO:</b>  File	<b>FROM:</b> <i>Annette S. Sackman</i> Annette Sackman, E & E	<b>DATE</b> 09-02-87 <b>TIME</b> 1300
<b>SUBJECT</b> Number of homes within one mile of Richardson Flat Tailings		
<b>SUMMARY OF COMMUNICATION</b> <p>During recent field investigation activities in the Park City area, I have noted three homes within a one mile radius of Richardson Flat Tailings.</p>		
<b>CONCLUSIONS, ACTION TAKEN OR REQUIRED</b>		
<b>INFORMATION COPIES TO:</b>		